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THE
OECONOMY
OF
NATURE

IN
ACUTE and CHRONICAL
DISEASES of the GLANDS.

BY
RICHARD RUSSELL, M.D. F.R.S.

Secundum ætates hæc autem eveniunt. HIPPOCR.

Translated under the AUTHOR's Inspection.

L O N D O N,
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MDCCLV.



TO HIS GRACE
The Duke of NEWCASTLE,
CHANCELLOR
OF THE
UNIVERSITY OF CAMBRIDGE.

And to the ROYAL
COLLEGE OF PHYSICIANS,
LONDON;

PARTICULARLY TO
SIR EDWARD HULSE, BART. }
EDWARD WILMOT, and } M.DD.
MATTHEW LEE, }

PHYSICIANS to His MAJESTY;

This WORK

Is humbly Address'd,

As a MARK of GRATITUDE,

by their most obedient Servant,

RICHARD RUSSELL.

THE
MUSEUM
OF
THE
CITY OF
NEW YORK
AND
THE
MUSEUM
OF
THE
CITY OF
BOSTON
1850

THE INTRODUCTION.

TO DR. WILMOT.

THE design of the following pages being to shew the method which nature takes, either in altering or setting on foot new glandular secretions, at different times or stages of our lives; and also to point out the means by which she aids and relieves the organs of any particular part, when they are diseased, or rendered either totally or in some degree incapable of doing their offices; it will be proper, before we describe any particular disease, to take a general survey of that SUBJECT, which is to engage our future enquiry. The knowledge of this cannot but be interesting and truly great, having God for its *architect*.

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And although these secretions are made by proper instruments, and according to mechanical, hydrostatical, and hydraulic laws; yet nature seems to be very exact in the times or periods of bringing them about. And, whenever they are forced contrary to her laws, and out of those appointed seasons, they are so far from being beneficial, that they often become real diseases.

I am very well apprised of the great difficulties that attend us, when we endeavour to speak plainly and intelligibly of things, which are beyond the power of our own sight, and in some instances even beyond the discovery of the best glasses; yet when reasoning is established on well-grounded facts, it may, I think, with very little indulgence, be admitted as conclusive.

Let us see, therefore, how far a true knowledge of those seasons will clear up, and remove, the difficulties we lie under, in treating rationally certain diseases, whose cure hath hitherto been attempted rather by empirical and specific remedies, as they term them, than by any certain rules of art. For by acquiring an accurate knowledge of the glandular secretions, we shall be taught when, and where, to throw in our aid, at nature's own time,
when

INTRODUCTION. 3

when in truth she is most assisting and consenting with our endeavours; and instead of going counter to her intentions, we shall swim easily and safely with the stream, if I may be allowed so to express myself, under her guidance and conduct. For an opposition to nature's laws, will ever meet with great resistance; and, tho' perhaps not always, will generally prove unsuccessful, if not fatal, in the event.

By these means we shall be taught how to mitigate, if we cannot cure, many diseases, which otherwise use to wear out our patients with miserable chronical complaints; many of which possibly have their foundations laid by a wrong management of the glandular secretions, in the first part of life, or by an untimely and indiscreet change of them afterwards.

Let us therefore, to form the best idea we can of ourselves, suppose that, when GOD created man, breathed into him the breath of life, and, according to the JEWISH law-giver's expression, *Man became a living soul*, he ordained and allotted him a constant supply of an animated fluid, which was, by the order of generation, to carry on the production of mankind, as long as the Creator intended it should last. And, in order to investigate

this truth, let us have recourse to comparative anatomy, from whence we shall be able to infer, that in all probability these primordial seeds do really exist, as well in animals as in vegetables, and wait only for a proper matrix to receive, and prepare them for life.

The several states of infancy, maturity, and decay, are observed by nature in plants as well as in animals. The stripling oak indeed never bears acorns; but I can nevertheless easily conceive an infinite number of small seeds, circulating in its tubes, for many years before the acorn is produced; which has inclosed in it another oak with all its series of fibres, and is then fit to be trusted to the matrix of the mother earth. In like manner, I can conceive the possibility of an infinite number of seeds being coiled up, and contained in the male animal, till the time of puberty, when they are discovered in the form of *animalcula*, and are fit to be trusted to the conception of the mother.

Comparative anatomy will not only incline us to believe this, but will furnish us with instances of plants, and perhaps of animals, which contain the seeds of their own tribes, and circulate those of others also, mixed with their own fluids. Straw, for instance, or grass urinated,

INTRODUCTION. 5

nated, and become musty, will produce the edible mushroom. The alder tree will produce that fungus we call *auricula Judæi*, or jews-ear: The ash will afford its black ebony, the elm its buff-coloured, the oak its white fungus, like an oyster-shell: And the birch the horse-shoe fungus, like agaric. The seeds of all these fungi, while they are not suffered to rest, but are hurried on with the common circulation of young plants, are so small, that even with the assistance of glasses, they are not perceptible, but as they are in constant motion, neither spoil, nor decay. For, a slower degree of circulation than that which attends the first encrease of plants, is necessary to permit them even to produce their own kinds. And it is a mark of decay and weakness, when a tree blossoms and bears fruit early; the more healthy plants being luxuriant, and swelled with sap, make vigorous youthful shoots; and no trees produce their fungi, whilst their growth is luxuriant. But, when they grow old and decay, their fluids, being then in a state of extravasation, take upon themselves new laws, and by their own *intestine motion*, ferment, disunite the solid parts of the decayed tree, rot it, and produce heat, at least such a degree, as is necessary to

6 INTRODUCTION.

forward the vegetation of those seeds of the fungi, which were left at rest in the rotten trunk ; and then indeed the fungus will shoot out, altho' the trunk of the tree is covered above a foot deep in the earth.

I mention these particular trees, as they are pretty constant in the production of these fungi, whose seeds, I think, must have subsisted in the plants, unless any one will contend for spontaneous generation. I might mention the living creatures found in the bile-duct and liver of sheep, the eggs of worms, &c. in animals, but think what I have already said sufficient.

If then it be probable, that these primordial seeds can pass with the common circulation, without being spoiled, to the time of puberty, vegetation and animation will appear to be governed by somewhat similar laws. The first shoots of plants are soft, succulent, and flexible, till their vessels are opened and expanded, and all the apparatus of fluids and solids become fit to produce bloom and seed, and to answer the end of propagating their kinds. At which time indeed they acquire a greater degree of firmness, the circulation of their juices is slower, they produce their several tribes ; and continue to encrease their rigidity,

rigidity, till, in their ultimate state, they become all heart, as the wood-men term it; are no longer capable of circulating their juices, but from that rigidity grow stunted and die. And this is the true sketch of a vegetable growth and decay.

Plants, as well as animals, have different strainers to separate their different fluids, which are used only at nature's stated times, and then are either spoiled or laid aside, until she wants to call them to her aid again; thus the odour of the flower ceases, when it is succeeded by the fruit. The root, the bark, the kernel, the flower, and the fruit, have all different flavours, from the different operations of their secretory vessels.

And this slow circulation in the tubes of plants, which happens when they have reached maturity, is observed also in the elaboration of the *semen masculinum* in animals: indeed there is no other animal secretion, in which such contrivances to retard and delay it in the first stages are evident. And, till this fluid is perfectly elaborated, there seems to be none proper for the *animalcula* to rest and subsist in, in passing from their first state. In this manner the primordial seeds of things seem to be preserved.

8 INTRODUCTION.

I have chosen to take these remarks from nature herself, she being the best and most faithful interpreter of her own secrets; they are her ways only which I endeavour to trace out, and therefore I shall follow her clue.

We may observe therefore, that altho' by her institutions the *semen masculinum*, in such animals as have a great slaughter made of their kinds, is soonest elaborated in the male, and the ovary of the female becomes sooner capable of impregnation; yet in man, who was to last near a century, this is not the case; those secretions in mankind being either not set on foot, or at least not having their fluids perfectly elaborated, till the youth ceases to be *imberbis*, or *impuer*. During all which time, nature secretly operates on the constitution, and at different times is busy in setting on foot new secretions, and in preparing and fitting the instruments for her purposes, till, like a skilful chemist, she has at length obtained the great arcanum, which was to answer the end designed by the first all-wise Creator.

At puberty, therefore, this fluid becomes so highly animated, and the expensive waste of it is attended with such a lassitude and loss of spirits, that I do not wonder ZENO called it

Partis

INTRODUCTION. 9

Partis animæ spoliū. More might be said upon this matter, did not the delicacy of the subject incline me to avoid enlarging upon it further than is necessary to give some light preparative to the following pages. But, as muscular force is beyond doubt encreased by this fluid, and many diseases of the glands are cured by the additional strength which the muscular coats of the conglomerate glands receive about puberty, it is above all things necessary to enquire, how nature brings these changes about, in order to administer such aids as she may possibly want, and at the time which best may suit her purposes. If we can make this discovery, it will surely be one great support and confirmation of the dignity of physic, as a *science*.

Experience convinces us beyond every possibility of doubt, that these changes happen in the constitution; but different authors have indulged themselves in a variety of appellations, to express their opinion of the means by which they happen. For myself, I shall beg leave to suppose, that nature is employed by the will and order of the great Creator of all things, in those offices, from our birth to the last moment of our lives; yet will I not dispute with any one upon mere words. For
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whether the old appellation *faculty* be the term, or the *soul*, or *nature*, or the *God of nature*, they must all, as I apprehend, substantially mean the same; I only beg indulgence for myself, when I use the word *Nature*.

We are now, therefore, to consider by what means she brings about these different changes at different periods of our lives, so far at least, as they have any connection with the subject of glandular secretions.

And this work she seems to effect, by imposing such tasks only upon the solids, as their present state is able to perform, and by producing such salutary plenitudes, as may be sufficient to promote an ampliation of the vessels, and serve her purposes at the various stages of our lives. For even nutrition cannot be carried on, unless larger supplies are every day offered, than can be added to the growth of parts, at that time; and, if there were not proper outlets to discharge those redundancies, they would of necessity produce diseases. And in this respect HIPPOCRATES seems to have been in the right, when he says, *The manner in which nature, or the faculty, acts, is by attracting to each part, that which is proper and fit, by retaining, preparing, or changing it;*

it; and after that which is useful has been separated and applied, she is busied in rejecting what is hurtful or superfluous.

And indeed, if we consider how these matters are conducted, his two principles, fire and water, (one to give motion, and the other to distend the tubes, and make the animal grow) are no very strange conceits. Upon this principle, HELMONT's willow tree grew from five pounds in five years, to sixty nine pounds, by the addition of water only. And, altho' the heat of the blood is supposed to be kept up by its own motion, yet they both seem at first to have been impressed upon it by the Deity, who possibly has directed heat and moisture to be the two great instruments nature is constantly to employ in this work of ampliation and increase. The great HARVEY's experiment will let us see, what effect heat has upon animal fibres, and the fluids contained in their tubes, when he says, upon exposing the *punctum saliens* for some time to the cold air, and observing it to beat more slowly and vibrate languidly, he tried if he could not restore vigour and strength to it, by applying his warm finger; when, in the space of twenty pulses, he found it revived and beat again, *Ecce corculum denuo reviviscit, erigitur, et*
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tanquam ex postliminio ab orco redux, pristinam choream redintegravit^a. And thus, says he, we could resign this *misellam animam* to death, or recal it to life at our pleasure. The consideration of this principle, seems to have carried the divine HIPPOCRATES into a kind of rapture^b: *That which we call heat*, says he, *seems to me, to be something immortal, that understands all things, that sees and knows all things, as well what is present, as what is to come.*

How visionary soever this may seem to be, (as in truth it must be allowed) yet the principle still subsists; and, tho' possibly we may never know perfectly, how every thing is brought about in the animal œconomy, yet we find attrition encreases heat; and robbing the animal of those organs, which nature employs to strengthen the powers of their fibres, and carrying on the business of attrition vigorously, will, as it were, change and alter the whole animal. If we consider, therefore, how this matter is done; and draw our knowledge of it from well grounded experiments, we

^a Vid. HARVEY De Generat. p. 53.

^b Δοκέει δέ μοι, ὃ καλέομεν θερμὸν, ἀθάνατον τὶ εἶναι, καὶ νοεῖν πάντα, καὶ ὁρᾶν, καὶ ἀπείν, καὶ εἰδέναι πάντα, καὶ τὰ ὄντα, καὶ τὰ ἐσόμενα. HIPPOCRAT. De princip. aut carn. sect. ii.

may be convinced, that it is easily brought about by robbing the male and female of their spermatic vessels.

For, by preventing the elaboration of the *semen masculinum*, you take away the cause that produces brawnyness and gives muscular force; and the elasticity of the vessels being by that means impaired, the attrition of the fluids is consequently lessened, native heat is diminished, and a *molities* brought upon the whole habit. There is something, therefore, in the organs of generation in both sexes, as well necessary to promote particular glandular secretions, as to assist animal growth : for it is hardly possible to imagine how much the tone of the solids, and their very shape is altered, by robbing the animal of the secretions made by those parts. All the marks of puberty are by that loss suppressed, and even the glands, which were concerned in producing the secretions in those parts, are not set to work, but remain useless and spoiled. *Ubi glandulæ, ibi etiam pili*, says HIPPOCRATES; and in his book, *De natura pueri*, he has not only confirmed the anatomical observation of glands affording nutrition to the hair, but has taken notice, that, if children are castrated early, they never have afterwards any marks of puberty ;

berty; because the glands, which should produce that change in the constitution, are so far destroyed, that nature cannot employ them for those purposes. *Quicumque vero eunuchi, dum pueri sunt, fiunt, propterea neque in pube, neque in mente pilas producunt, lævesque toti existunt.*

Having ventured to pursue nature in her secret progress thus far, let us take another step, and see what effect the *semen masculinum* has upon the solids, and their secretions, from examples of uncastrated and castrated animals. And as the yearly growth of bucks horns, is more considerable than any other animal increase, within the same space of time, we will consider that animal in its perfect state, before castration, and in its imperfect state, after castration.

The horns of a buck, having acquired their utmost growth, continue to be thrust off during the spring by new ones, from about the middle of April to the latter end of May, sooner or later in proportion to the animal's state of health. The new horns are at first soft, spongy, resembling velvet, and bleed much upon cutting, the blood and juices find little resistance, the vessels yield to ampliation, are elongated, and produce a very luxuriant

xuriant growth, equal indeed to the vegetation of many plants: till the force of the heart, and arteries, can carry the horns no further in their increase. From that time they gradually continue to harden, till they have reached the ultimate state of solidity designed them. This growth happens in the spring, and summer months, when the animal is nourished to the highest standard of his health.

And, as the covering of velvet seems to defend the young horn from the injuries of the air, so it is contrived, that this soft state of the horn may happen in the summer months, when the female deer are nursing their young and avoid the company of the males; who at that time, therefore, have no rivalry, and live in harmony with one another. The velvet of the horn is rubbed off about the latter end of August, a little before rutting time comes on. But, if it be torn, or injured much before that time, flies settle, and lay their eggs upon it, and a cutaneous disease is produced; which, spreads like an erysipelas, swells the head of the buck, and very often kills him.

But, as rutting time comes on, the horns are hardened, the buck is perpetually rubbing the velvet off against trees and shrubs. This
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he is probably inclined to do from an itching in the part, produced by a secretion set on foot, when the incentive glands begin to operate; which makes the velvet slip off, and then the horn is left hard and polished, and the buck fit to meet his rival in the plains.

Thus much concerning the horn in its natural state; let us further consider the state of the glands at rutting time, when the horns have acquired their due firmness. The buck then begins to *treat* the *rut*, as keepers term it; that is, makes a croaking hoarse noise, so as to be heard at a great distance, and by that means calls to himself the female deer, that about the middle of September are also in their *rut*.

At this time also, from the *hircine* secretions now set on foot, there is a very great change made in the whole animal. The testes first become considerably enlarged, next succeeds a loose glandular swelling about the larynx; and the glands furnish plenty of mucus, to defend the throat from growing dry, whilst the buck is in that perpetual action of forming his throat to make the noise described. Afterwards the neck swells, and the muscles grow more brawny; but, as the buck is kept perpetually watching by venereal ideas,

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he falls away and his skin grows loose and soft as the *membrana adiposa* wastes in thickness at the latter end of the rutting season.

I say this is at the latter end of the season, because at the beginning of it all the glands of the throat are considerably enlarged, and continue so all the time of rutting. At this time also the secretions by the incentive glands are so rancid, that the keepers are forced to avoid cutting any of the lymphatics near the parts of generation; otherwise they shed out a yellow liquor, of a very disagreeable taste and smell; which affects all the parts it touches, and makes the flesh not eatable. These, and other alterations, happen at this time; as the producing of hairs upon the neck, throat, and extremity of the *præpuce*, which are blacker than at other times. But all these appearances cease, when those hairs at the extremity of the *præpuce* cast off, and afford a disagreeable smell. And happens at the end of rutting season.

Enough therefore has been said to prove, that the *semen masculinum* is greatly concerned in these glandular secretions; that it exalts the state of the blood; that divers secretions are set on foot, when the buck is to be incited to coition, which do not subsist at other times;

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and that the taste of the flesh, and the whole animal, is greatly changed thereby.

Let us now turn our eye upon the animal in his imperfect state after castration, and we shall find him wonderfully changed. If he be young when castrated, he will have no horns at all, or small buds only, and those soft to the touch like velvet, and void of firmness. The glands, which secreted the *semen masculinum*, no longer subsisting, the juices of the animal can no longer be saturated with them. The parts which should produce horns are no longer, or very weakly set to work, like those of the chin or pubis in boys after castration. The glands of the buck's neck no longer swell, nor are enlarged at *rutting*-time; the neck loses all its brawny thickness and firmness, nor are there any other of those marks before mentioned, which always appear in bucks uncastrated at *rutting*-time. For, tho' nature has all the constituent parts put into her hands before the birth, yet as they are her instruments, she makes use of them, at her own times and seasons only, and that upon proper occasions, and always in the greatest order. For, as *Seneca* says, *In semine omnis futuri ratio hominis comprehensa est: & legem barbæ, & canorum, nondum natus*

tus infans habet. Totius enim corporis, & sequentis ætatis, in parvo occultoque lineamenta sunt ^d.

I offer these remarks not only with a view of shewing what effect the *semen masculinum* has upon these particular secretions, but what effect it has also upon animal fibres in general; and in order likewise to point out to physicians, what affinity one part of the glandular system has with another. And this will, in some measure, direct us to judge from what quarter we ought to expect relief in certain diseases, and will point out the season, when it may be most proper to make use of this or that particular secretion. For hereafter we shall shew, that some parts of the glandular system are more inclined to receive the transition of a disease from one particular part than from another.

But we shall now proceed to shew from experiments, that, when the animal is castrated, the whole habit loses its firmness. The brawny neck, the loud bellowing of the bull, is changed into the lowing of the ox; the muscles lose their firmness and gluten, and are altered even in their shape; for the adipose glands, not being so closely compressed as be-

^d Vid. SENECA Nat. quæst. l. iii. c. 29.

fore, increase in bulk, and the flesh cuts *marbly*, as the butchers term it; the muscular flesh being striped and intermixed with fat. And this is the case with all animals after castration; the soft, glandular, fat habit, with the female voice, takes place in eunuchs, instead of that firm manly one, which was the gift of nature.

Having hitherto considered the male, let us just cast our eye upon the female; whom we shall find, after the ovaries have been taken away, &c. to be nearly in the same circumstances as the male: for now, being left undisturbed with passions, she grows fat, and her habit is more soft and pulpy.

This therefore is the order of nature, as far as glandular secretion is concerned: from whence it appears, how necessary it is to have the habit well saturated with these particular secretions, at certain times of our lives. This will direct us to see, what diseases may probably happen from a deficiency of them, and what great mischiefs may be done by imprudently forcing them against the general laws and order of nature. From hence also we shall learn, not only how improbable, but even impossible it is to cure some diseases, till nature concurs, at the proper season of our lives,

INTRODUCTION. 21

lives, with the endeavours of the physician. These matters are of the utmost consequence; and all persons, trusted with the great charge of bringing up children, ought not only to know, but carefully attend to them. *Secundum ætates enim hæc eveniunt.* HIPPOC.

EXPERIMENTS.

If we would come at a true knowledge how to treat some diseases of the glands, it must be highly necessary to learn on what causes depend their secretions. Since therefore the *semen masculinum* seems to have a share so considerable in making their great changes at certain times of our lives; in order to establish some principles laid down in the following pages on glandular secretions, I shall beg leave to lay before my reader the following observations on castrated animals; by which he will see, that the history of this fluid and its uses, have not been sufficiently attended to.

EXPER. I.

I caused a very young deer to be castrated, and the event was this; he never had any horns.

EXPER. II.

I had a young deer, some months older, castrated; and he had one little velvet bud, instead of a horn, on one side; and an irregular velvet horn, about six inches long, on the other side: both were cartilaginous; and the longest had not stability enough to keep it strait, as in the pricket-deer, but inclined horizontally.

EXPER. III.

I ordered a deer, somewhat older than the second, to be castrated, but not cut clean, as they term it. The event was this; he had two most irregular horns, that never cast their velvet; and the left testicle and spermatics being least spoiled, the left horn was (for that reason probably) one third longer than the right; and nature, not being able to carry on longitudinal growth but a little way, made her second attempt in trying to throw out collateral branches. But, as she was not able to effect that neither, her efforts terminated in producing some bony knots only, or bunches, from which hung soft penfile glands that were covered with velvet, and much resembled the manner

PAG II, 22.



Рбгб, 98.

manner in which grapes grow from the stalk. See plate, fig. 1.

EXPER. IV.

Lastly, I had two old bucks castrated at the end of February, and their horns dropt off the twenty-first of March following: so that the fall of their horns was anticipated five weeks at least. These horns were renewed next year, and were longer than the bucks of the same age; but the palms, or collateral branches were less and shorter; and neither the velvet of the horns, nor the horns themselves, were cast ever afterwards. The deer however, knowing their inability, or wanting courage to defend themselves, withdrew from the male deer, and were timorous, but looked sleek, and grew fat.

The same thing happens in the bull, whose thick, short, strong horn, upon castration changes to the thin, long one of the ox; his muscles too are weakened and less brawny, and his very voice is changed.— It appears from hence, that the *semen masculinum* stops longitudinal, but promotes lateral growth, or thickness.

POSTSCRIPT:

March 5, 1755. I this day called to see the two old bucks, mentioned above in the fourth experiment. In that which was six years old, and whose horns, the year after castration, made longer shoots than any bucks of the same year; the event was this: The muscular powers of the heart and arteries were so weakened, for want of the habits being saturated sufficiently with the *semen masculinum*, that nature was equally unable either to cast off the old, or to produce new horns; neither could she maintain the last year's horns in their original growth. For they are gradually decreased, till at this present time there remain only stumps of horns, three or four inches in length. In the other buck, one of the horns is about half wasted; the other is not so much diminished: possibly, because this buck might not be cut so clean as the former.

THE
OECONOMY
OF
NATURE

IN CHRONICAL and ACUTE
DISEASES of the GLANDS.

CHAP. I.

*Of the state of the child, whilst its life depends
on the mother.*

HAVING shewn, in the first part of
this work, the doctrine of diseased
glands, and the different terminations
of their tumours, we will proceed to consider,
what order nature observes in regulating the
various secretions that are made by them, and
at

26 THE OECONOMY

at what periods of our lives she either sets on foot new separations by the glands, or alters, or sometimes entirely lays aside the old; as she finds it necessary to preserve, or relieve, the subject. In course of which consideration, we shall speak of the transitions of diseases in the glandular system, and by that means learn that very many of those complaints, which we call *chronical*, are no more than a translation of the disease from one part of the glandular system to another; and shew, not only that the various strainers are formed to help and assist one another upon all great emergencies, but moreover that the physician has the direction of their secretions very often under his power.

And in order to do this I shall confine myself to the laws of nature most exactly, being persuaded that an history of diseases, honestly drawn after that plan, will tend more to the improvement of our art, and the healing of the sick, than all other speculations whatsoever. This will not only give the physician the best idea he can have of the subject that he is to treat; but will point out also the surest and most certain ways of removing any faults in the machine. And farther, whilst I confine myself to this one subject, the diseases of
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the glands, let us observe how far we may wipe away that common reproach of the uncertainty of our art, and the physician's having no proper clue to guide and direct him through the labyrinth of difficulties, with which he finds himself surrounded, when he first enters upon his profession.

And this I hope to compass, by laying aside all abstruse reasonings, and contenting myself with such observations as result from nature and experience only; by following that course, which the best guides of antiquity have pointed out; by observing their charts, and the soundings they have left, as marks for us, behind them. And when I can carry my enquiry no higher, from the assistance of their observations, I shall venture out to sea upon my own bottom, and take nature for my guide; following her in all things, and observing at what times of life, and what method she takes in bringing about all the great events that are to happen under her prudent conduct. ° *Natura in animali omnino anima est. Ipsa fabricat calces, dentes, cornua, ad vitam tuendam; itaque iis et utitur, et scit quo sit utendum modo, sine objecto aut phantasia ulla.*

° Vid. J. C. SCALIGER. Exer. 307. Sect. 29.

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And, since our enquiries will tend chiefly to learn how things really are, that we may thereby learn the present necessities of life, and study how to provide for them; and, when we know the diseases of each stage of life, to consider how best to remedy those inconveniences; it will be necessary to carry up our enquiries to the first commencement of life; and, tho' our art is bounded, yet see what is to be done within the limits of it, which indeed is all that can be reasonably expected.

Diseases of the
Placenta. If the doctrine of generation generally received is true, as it appears in all probability to be; let us next suppose the egg detached from the ovary, fallen thro' the Fallopian tube, and adhering to the matrix, in the same manner as a bud of a tree, separated from its twig, unites, when applied by inoculation, to the sap-vessels of another tree. And this seems to be done by the mutual insertion of the arteries of the uterus into the veins of the placenta, and the arteries of the placenta into the veins of the uterus; by which means a circulation is preserved betwixt the mother and the child. From this union seem to spring the rudiments of the placenta, whose vessels being daily more and more distended,
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and thickened in their coats, appear to be inserted, like little roots, into the uterus. And, as the placenta becomes more and more enlarged, the embryo proportionably increases in growth; till their vessels take off the plenitude, which arises from a suppression of the menstrual purgation, and relieve the mother from those symptoms, which oppressed her during the first months of gestation, whilst they were not sufficient to supply that defect.

And here we must make our first stand, and observe, that the symptoms, which arise upon this suppression of the menses, are not peculiar to the mother, or to the want of that evacuation only; but are to be found, on all other suppressions of natural evacuations, more or less, during the whole course of their lives; and, at the same time, let us take notice how nature relieves these inconveniences.

The mother, upon the first suppression of the menses, has all the symptoms of an increase, or plenitude, arising in her habit; she grows indolent, is inclined to sleep, has frequent oscitations, is troubled with a sour ructus; her digestion is impaired; frequent pukings, of sour slimes, trouble her daily; she grows by degrees more and more pale; and, like a girl in the green-sickness, is out of breath

upon moving much, longs for trash, has risings in her throat, and a train of hysteric complaints, which sometimes produce epileptic fits, or worse disorders on the head. Under these circumstances, what are the indications of cure? Why nature herself plainly points them out, and directs the physician to do what in a few months she will be able to effect herself: I mean, to substitute some evacuation, till the placenta and foetus are large enough to take off the redundancy, which happens upon this suppression of the menses.

And this is the first instance we can give, in which nature relieves the habit of its fullness by her own strength; which she does in the present case by altering the usual method of its passing off, and by setting on foot a new separation by the placenta, instead of the vessels employed in menstruation. Thus, we see from the beginning she alters some, sets on foot others new, or for a time entirely lays aside particular secretions, till she has occasion to call them again in to her aid. Prudent venesection, a moderate diet, keeping the acidities of the stomach corrected by the testaceous powders, and a little rhubarb, are as useful in these cases, as they are to children afterwards; and, if prudently managed, would prevent

prevent many miscarriages, which happen for want of such care. The mother therefore, at this time, is greatly to be considered, for on the right management of her, during the first month of pregnancy, depends in great measure the safety of the child. ^f *Puer vivit de matre in utero, et quali mater sanitate prædita est, talem etiam puer habet.*

Diseases of the Ovaries. And here I hope the reader will pardon a short observation or two, concerning some diseases of the ovaries, which often take their rise, either from a want of timely menstruation, or from the distention they suffer upon the first suppression of the menses. I think I have seen instances of both these cases happen, which probably might have been relieved by prudent evacuations, and a right management of the separations from the blood, according to nature's laws.

I once saw a young woman, about the time of puberty, in whose constitution nature had made divers attempts to bring about menstruation, but could not. She had, for two years successively, distensions of her breasts; the glands of her neck swelled; she was short-breathed, and spit a little blood; but her breasts and neck subsided, as she perspired

^f HIPPOCRAT. De natura pueri.

largely

largely in the summer, and all her other complaints went off, till the next spring. The third year, when she was about seventeen years old, she had no more complaints of her breasts, or glands of the neck; but she grew bigger, and her belly encreased, from internal tumours, year after year: however, it was so gradually, that she carried these schirrhosities above twenty years, at which period she died. I was desired to attend the opening her body, as the case had been all along entrusted to me, and I had conducted her through many difficulties, during that time.

Upon the surgeon's inspecting the cause, we found it to be a disease of the ovaries; some parts of which were perfectly schirrous, and weighed, upon taking out, above fifteen pounds: others contained in their cysts great quantities of roapy water, of different colour and consistence: but I could find no collection of perfect pus. When her kidneys came to be compressed by these tumours, she underwent great difficulties; but was relieved by the following draughts, more than by any thing else.

R Succ. Limon. ʒvj. Salis Absinth. ʒss. Aq. Petroselin. ʒiss. Cinam. fort. ʒss. Acet. scillit. ʒj. Syr. de Croco ʒj. M. f. Haust. 8^{va} quaque hora sumendus.

This

This sent off great quantities of urine, and relieved her, during the course of her illness. She was attacked likewise with an hereditary gout, of which she had frequent regular fits; but they made no alteration in the other part of her case. Let this suffice concerning the distemper, when it comes in for want of the benefit of puberty. Another patient I remember who fell into this disease, from a suppression of the menses, during pregnancy by her second child. She had one child afterwards; but the tumour remained, and increased annually; till her lungs also grew affected, and she died of a purulent dropfy and consumption. For, some matured tumours of the ovary had broke, and shed their impurities into the abdomen. Frequently abscesses of the lungs broke, and were spit off; consequences of those internal tumours, which had gone into apostemations, and infected the other glands with their matter.

In this case, it was surprizing to see what quantities of matter were sent off from the blood by urine. I have seen in the urine, which was saved for me, in the morning, spoonfulls of heavy pus subsided to the bottom; tho' the patient had never in the least

C laboured

laboured under any disease of the kidneys. This circumstance I have often observed in a vomica of the lungs.

From what has been said, it will appear how great care ought to be taken that the blood vessels of the pregnant woman be not overstrained, or distended too much, by the fullness, which must necessarily arise, during the first months of gestation. As constipations of the belly often happen in these cases, care should be taken, that it proceed not too far, before the patient is relieved; for want of which precaution, and proper blood letting, hæmorrhoids, and lasting diseases of the rectum, are often produced, the legs become varicose, and foundations are laid for ulcers, which trouble the patient all the latter part of her life.

I shall not enter into any disputes about the placenta, whether it is glandular or not. But if it be considered only as an adventitious body, adhering to the matrix, and supplying, *pro tempore*, the office of the blood vessels used in menstruation; then hitherto we have been right, in the notion of its being a part so constructed, as to derive somewhat from the mother, be it glandular or not: however, I shall

shall follow Dr. WHARTON, and consider it as such.

But to proceed: As the placenta enlarges, the foetus also grows, till, in the ninth month, the waters contained in the amnium burst their membranes, lubricate the parts, and the child is born.

And, this ampliation of the vessels is so considerable, whilst the foetus is in the matrix, from the first conception, that Dr. HARVEY, upon shewing the *punctum saliens* to king Charles the first, observes the tremulous motion was so obscure, that they could not perceive it, but by the assistance of the sun's rays falling obliquely upon it. He says farther, one would wonder that in so short a space, as from the first observation of the *punctum palpitans*, the foetus could be formed, and perfected in the amnium. For the *punctum saliens* appeared on the 19th or 20th of November, in the deer kinds, and on the 21st or a day after, was seen the vermiculus, or rudiments of the animal; and in six or seven days after, the foetus was seen so perfect, that you might distinguish the male from the female, the feet were formed, the hoofs cloven, slippery, and a little yellowish.

And, in speaking in another place of the

punctum saliens he says; ^a *Punctum sanguineum saliens emicat, exiguum adeo ut in sua diastole ceu minima ignis scintilla effulgeat, et mox in systole visum prorsus effugiat, et dispereat: tantillum nempe est vitæ animalis exordium, quod tam inconspicuis initiis molitur plastica vis naturæ.* Dr. GARTH in his *Dispensary*, seems to have formed two beautiful Lines upon this hint;

“ How the dim speck of entity began

“ T’ extend its recent form, and stretch to man.”

And this agrees with the account given by HIPPOCRATES, in his book *De natura pueri*; of the Cantrix that miscarried: and with that also of the common women in his time, many of whose embryos he examined, after about seven days conception. ^b *Primum enim postquam genitura in uteros pervenit, in septem diebus habet quæcunque corpus habere debet, etc. Postquam autem jam perditus est, elabitur velut caruncula. Hanc carunculam in aquam conjectam si conspectus consideraveris, omnia membra habere reperies, etc.*

Thus having considered the *embryo ab ovo*, with the methods nature proceeds in till the

^a HARVEY, *De generatione*, p. 49. in 4°.

^b HIPPOCRAT. *De ætat.*

birth;

birth ; let us enquire how things go on afterwards. This in brief is what we have hitherto seen, that the placenta does the office of the lacteal glands ; is therefore liable to obstructions from plenitudes ; that fluids may stagnate in its tubes ; that it may fall off from the matrix ; that the fœtus may be robbed of its nourishment ; that it will then die ; and that the mother must miscarry, unless all these causes are guarded against. But, if they are prevented, then the child at the period of nine months is usually born sound and healthy.

Let this suffice concerning the subject, before it depends totally upon the nourishment, which it receives by the lacteals.

C H A P. II.

Of the state of the glands from the birth to dentition; when the lacteals are employed in nourishing the child, and its food may properly be said to be of milk.

AS historians are dark, uncertain, and obscure in the relations, which they give of the origin and birth of a people; so perhaps physicians are in the accounts, which are given of man before his birth. But the birth is like some great event in a state, from which you may date the history of its changes, with more certainty and precision than in its obscure state.

The umbilical cord therefore being separated from the mother, and a flux of blood prevented by the ligature; is now to depend upon a new manner of nourishment. The placenta, falling off from the uterus, leaves the *vasa inbiantia uteri* to close, till they are opened again by the return of the menses.

And here a new scene of animal secretions is disclosed to our consideration. For, if the alimentary tube is a gland of its particular kind, and the lacteals are its secretory vessels, which

which some physicians have supposed, then the animal depends upon this glandular secretion, from the moment the umbilical arteries are separated from the placenta. The stomach and intestines are designed for the digesting, and fitting our meat after it is finely divided by the teeth, to pass through the lacteals into the mass of blood, and from thence to be distributed by the heart, and arteries, through the whole order of vessels, which are gradually *unfolded* to receive the nourishment.

Let us see therefore how nature goes on with the ampliation and extension of the vessels, which indeed is but slowly effected and often not carried to the utmost height in *longitudinal growth*, till after the age of twenty years. The salivary glands, and the glands of the stomach, having poured out their contents and deposited them, by every deglutition, into the cavity of the stomach, as an help to digestion, the membranous and muscular coats of the stomach compress the food strongly, and, by the peristaltic motion, throw off the mæconium, and what was contained in the intestines before the birth. And, as we have before observed, from Dr. HARVEY, that the growth of the fœtus in the

matrix was very sudden, so the growth of the infant (like the first years shoot of a young plant) is generally much faster than afterwards. The heart, meeting with but little resistance from the weak tubes, which are filled from the lacteals with a thin diluted fluid, distends and ampliates the vessels, like the surgeons injecting syringe, as far as they can bear to be distended, without bursting in their present weak and tender state.

Thus we see nature employed from the birth, in applying what nutrition she can to the parts, in unfolding or ampliating the tubes, and stretching the child into growth. At the same time, the redundancies of the constitution are sent off, by the glands of the skin, by urine, stool, and all the glandular secretions. A deficiency in any of these must make the subject diseased, and render it liable to fluxions upon some other part. HIPPOCRATES saw this, when he observed ;
ætatibus vero morbosissimi sunt juniores ; corpora enim cito augeſcunt ; et tales diſtillationibus obnoxii ſunt.

* Vid. HIPPOCRAT. De diæta, l. i. ſect. 24. Edit. in 8vo.

The infant therefore, being in good health, nourishes and increases in growth very fast, and soon acquires that state of increment, beyond which it cannot proceed without falling into a disease. And, as it is not possible to rest absolutely in that state, because of the various changes to which human nature is liable, the aforesaid helps must be called in, otherwise a disease will necessarily ensue, from the constitutions rising above, or falling below, the equilibrium of health, if I may be permitted so to call it. But indeed, providence has wisely taken care to prevent obstructions, in this weak state of the solids. For, we may observe, that the blood of infants is usually pale, watery, much diluted, and the lacteals kept washed by a thin roscid chyle. Under which state of fluidity, the circulation thro' the minute vessels is well carried on, and their tubes are widened and extended gradually, by the force of the heart, much better than if the fluids were in a less diluted state.

As therefore changes must daily happen in the constitution, and one part must be called in to the aid and assistance of another, upon various emergencies, let us consider to what helps nature trusts in these cases.

Here

Here again we shall find, as she depended upon the placenta and foetus, to take off the redundancies, which happened to the mother from a suppression of the menses; so in this case, the two chief aids she seems to depend upon, for relieving the superincrement, are the cutaneous glands, and those of the intestines; which mutually assist each other in this great work.

Whoever therefore has attended the nurseries of children with a curious and diligent eye, must have observed, that the first marks of diseases with them generally appear in the skin, or are perceived to affect the stomach, and bowels; notwithstanding the kidneys, and other glands, may lend their assistance.

When the infant therefore has
 The Red gum. attained this degree of increment, the skin is usually loaded with an eruption, which our nurses call the *Red gum*. This is a disease truly of childhood, which spreads itself all over the milliary glands, sometimes with broad and sometimes with infinitely small red pustules. At this time also the glands behind the ears, and those in the groins, begin to discharge, and keep the child in health. And these eruptions

tions are so necessary, on the abovementioned account, that the *father* of physic says those children are unhealthy, who have them not ;
^d *Et quibuscunque quidem, pueris existentibus, erumpunt, ulcera in caput, et in aures, ac in reliquum corpus ; et qui salivosi fiunt, ac mucosi, hi ipsi in progressu ætatis facillime degunt : qui vero mundi sunt, et neque ulcus ullum, neque mucus, neque ulla saliva prodit, neque in uteris purgationem fecerunt, talibus periculum imminet, ut ab hoc morbo (i. e. Epilepsia) corripiantur.*

But, as these discharges are highly rancid, they require great neatness in the nurse ; otherwise they will produce troublesome excoriations. During the time of these salutary discharges, the child is usually in good health, but, as their continuance is very uncertain, if they suddenly disappear, the governess of the child may expect some change in the state of its health. For, if no new secretion is set on foot, to supply the want of that which ceases, the marks of an oppressed habit will soon appear ; the child grows sleepy, the stomach is out of order, and frequent pukings of slimy phlegm trouble him ; because the glands of the stomach

^d HIPPOCR. De morbo sacro.

and intestines are now set at work, in order to enlarge their secretions, and receive the humors, instead of the glands before employed ; I mean those behind the ears, those of the groin and the miliary glands. And indeed, after these symptoms come on, I have seldom known the eruptions in the skin, or discharges from behind the ears or from the groin, subsist at all ; most certainly however but a very short time.

Thus we see, that the human blood is heterogene, and therefore several combinations of particles will easily be formed, which cannot pass through the strainers of the machine ; and must consequently produce variety of cutaneous diseases. These, as they are many and various, happen at very different times of life ; for instance, the red gum, which is singly the disease of childhood. Secondly, eruptions on the skin, of all kinds. Thirdly, the small pox, and measles ; the scarlet, and all other eruptive fevers ; the chicken pox ; swine pox ; etc. And, these diseases possibly may make such an alteration in the strainers, that they cannot retain the same kinds of morbid matter a second time, or they so weaken them, that their texture is spoiled, and remains ever
after

after diseased. Indeed, in many habits they are so formed by nature, that they are unfit to retain the morbid matter; and, altho' the experiment of inoculation be made upon them, and the symptomatic fever appears in most exact time, and in the usual manner with which it shews itself in others; yet the disease is wasted by strong putid sweats, without any eruptions whatsoever. This I have frequently seen; nay, I have put some of these patients by way of trial, into rooms infected, with a new set of persons inoculated, and let them go through the whole time of nursing; but could never give them the small pox. After this trial I concluded, they were secure from any disease of that sort. But to return to our subject.

When the discharge from the skin ceases, let us see what shifts are made to get rid of the disease, which would arise from that accident. And here we may observe that, when the discharge behind the ears, from the groins, etc. ceases; and the red gum totally disappears, the secretions by the glands of the alimentary tube are daily augmented; the infant has almost the same symptoms, which the mother had upon a suppression of the menses, at her first being pregnant.

pregnant. The child is afflicted with four belchings, pukes up its food, the intestines are distended with flatulencies, risings, or choakings in the throat are perceived, as in hysteric women ; it starts, and is frightened at any sudden noise, and, upon undressing male children the nurses frequently observe a swarthynefs, or darknefs, about the testes, as well as about the eyes and mouth ; and, an erection of the penis whilst the child sleeps. He is often awaked with clinching of his fists, which are strongly contracted ; he stares and fixes his eyes, and, if there is a constipation of the belly, frequently falls into convulsive or epileptic fits.

But, as I before observed, this
 A diarrhœa succeeds the striking in of the red gum. is very often prevented, by nature's setting on foot a larger secretion of humors by the glands of the intestinal tube ; from whence a diarrhœa is produced : which supplies the deficiency of the discharge by the skin.

But, here also the skill of the
 A necessity of restraining the diarrhœa. physician is much wanted. For, if the acrimony of the juices, in the stomach and bowels, is not corrected by the testaceous powders, and the diarrhœa moderated by that means, or by
 the

the help of a little rhubarb; the following symptoms will arise. The child will be afflicted with most cruel and tormenting gripes, it will have green bilious stools; be kept awake by pain; and, tho' it sometimes sleep, will be frequently waked by starts, and draw its legs up to the belly through excess of pain: and if the *irritation* is not by some means moderated or appeased, the child will fall into convulsive, or epileptic fits, from the greatness of the irritation only. These spasms are as much to be quieted by the testaceous powders, and gentle opiats as an hysterical colic is. And unless something of this kind is done, the separation and discharge, which nature substitutes, either in order to cure or prevent the disease, will of itself become a real disease, because it is not kept within due bounds.

This I call the first transition of nature, after the birth, where the disease is translated, from the glands of the skin to those of the intestines, and this is frequently done even in the first month. But, as these symptomatic epilepsies, are spurious, and very different from the true epilepsy, which is produced from other causes, it will not be improper to give some instances of this kind, both with a
2 consti-

constipation of the belly, and with a diarrhœa.

HISTORY I.

Of epileptic fits with a constipation of the belly.

I was called to a male child, about ten weeks old. There had been a plentiful eruption of the red gum; but no running behind the ears, or from the groin. The child was of a gross habit, and upon the retiring of those eruptions from the skin, it grew sleepy, rejected its food, had frequent risings in the throat, and the belly was bound. The apothecary was applied to; who gave it rhubarb, once or twice; but the constipation of the belly continued notwithstanding that assistance; and upon the change of the moon the child fell into an epileptic fit. Upon this I was consulted, and advised some blood to be taken away, by the lancet or leeches, a fontanel to be opened in the neck, and the belly to be kept open by rhubarb, or clysters, with the following solution of the gums;

℞ *Affafætid.* ʒj. *Gum. Ammoniac.* ʒj. Solve
in *aq. lact. puleg. aa* ʒij. m. *Sumat.*
cocbleare

OF NATURE.

49

*cochleare parvum, i. e. a pap spoonful,
bis terve in die.*

℞ Pulv. de guttet. ℥iss. castor. ℥ss. Aq. lact.
℥iiij. Pæon. c. ℥j. Cinnab. antim. ℥ss. Syr.
pæon. ℥j. m. Sumat cochlear. i. frequen-
ter.

The fontanel began to discharge, and the rhubarb had given two or three stools, but the constipation of the belly still continued, on which account *ol. amygd. d. et syr. violar.* were added to the above method. But neither did they all sufficiently answer the purpose; for upon the next change of the moon, the convulsive fits returned, and in one of them the child died.

HISTORY II.

Of an epilepsy with a constipation of the belly.

A male child was seized with an epileptic fit, upon the stopping of a plentiful discharge behind the ears, by the application of a topical remedy, which dried it up.

D

Being consulted after the first fit, and finding the belly constipated, I advised some blood to be taken away, an issue to be made in the neck, and a little blister betwixt the shoulders,

shoulders, to be kept running till the fontanel discharged ; and the following method to be pursued.

Mitt. Sang. pro ratione ætat. Fiat. fontanel. in nuchâ.

℞ Mannæ Calab. ℥viij. Ol. Omygd. d. ℥ijss.
Syr. Viol. ℥ijss. m. Sumat Coch. j. tertia
vel quarta quaque hora, donec alvus de-
jecerit.

℞ Spts. Corn. Cerv. per se ℥j. Sumat gr. x.
in Cyath. aq. fontan. pauxil. Syr. Pæon.
edulcorat.

℞ Asafætid. ℥j. solve. in Aq. Lact. ℥iij.
Puleg. ℥ij. m. fiat Lac. Sumat Coch. par-
vum bis terve in die.

The belly was by this means kept soluble ; the fontanel discharged plentifully, and the child had no return of its epileptic disorder. This I think will be sufficient concerning epileptic fits, when they are attended with a constipation of the belly ; which indeed are generally the most fatal cases.

We shall now proceed to give some instances of epileptic fits with a diarrhœa, which proceed from irritation. The two following cases are plain instances, of a
diarrhœa

diarrhœa succeeding the stoppage of the discharge by the cutaneous glands.

H I S T O R Y III.

Of epileptic fits with a diarrhœa.

A female infant, about twelve weeks old, had the red gum very full, and at the same time, large discharges from behind the ears and from the groins: during which discharges, she was plump and fat, slept well, and the increment was in every respect carried to the highest degree, which the constitution could bear without producing a disease. But now the child grew heavy, and sleepy, and the nurse observed her even in sleep disquiet and restless. Soon after, she rejected her food; frequent pukings came on, in which she threw up a great deal of roapy phlegm, like the white of eggs conquassated; the milk curdled; she fell into gripes, and a violent purging soon after succeeded, with green bilious stools. At this time her sleepyness went off; the cutaneous eruptions, with the discharges behind the ears and groins, totally ceased; the infant was now perpetually crying, and drawing her legs up to her belly through

excess of pain; risings in her throat were frequently perceived, like the strangulations observed in hysteric women, and at the same time a darkish leaden coloured circle, which came and went by fits, about the eyes and mouth: she held her breath and cried till her whole face looked of a swarthy colour. In a day or two the epileptic fit came on.

The diarrhœa was so sharp, and so frequent, that there was a *prolapsus ani*; and, as soon as the child came out of one fit it went into another. To take off the irritation from the rectum, I ordered it to be well pounced with the testaceous powders, finely levigated; and reduced by the help of the nurse's finger, and a warm cloth. I advised also the testaceous powders to be given, in sufficient quantities, internally; and the following method to be pursued; giving the *anodyn* betwixt the fits, at proper distances, till sleep ensued;

℞ *Pil. Matthæi* ℥j. *Asafætid.* ℥ss. *Solv. in*
Aq. Puleg. ℥iiij.

A pap spoonful of this was given occasionally, till the spasms were quieted, and sleep ensued. But this was ordered to be continued (unless the child was bound) once

or

or twice in twenty four hours, to prevent a return of the symptoms, laying aside the *anodyn*, after the spasms had been quieted for a day or two.

By this method her epileptic fits were cured; she had afterwards a fontanel made in her neck, and is now the mother of many children. But this is to be remarked, that when the diarrhœa had been stopt some few days, the eruptions appeared again in the skin; and as the child thrived, the discharges from behind the ears and in the groins returned, and when the discharge by the cutaneous glands ceased, the diarrhœa supplied its place. This translation of the disease happened several times in this case. The diarrhœa however was ever after moderated, by powdered coral taken in its pap; till the child grew stronger, and the glandular secretions were performed according to nature's laws and more vigorously.

But, altho' *assafœtida* was joined to the opiate, on account of the risings in the child's throat; yet I have observed, that foetid gums do not succeed so well in children, who labour under epileptic disorders, with a lax state of the bowels, as in those whose bellies are constipated; nor even there so well, as

in those true epilepsies, which last to puberty. At which time, indeed, fœtid gums, and medicines of that tribe, beyond doubt promote the hircine or fetulent secretions, which are so necessary to the constitution at that period.

HISTORY IV.

Of epileptic fits with a diarrhœa.

A child of eight weeks old, upon the disappearing of the red gum, was seized with a diarrhœa; had green bilious stools, and all the symptoms before mentioned. She was nursed by hand, as nurses call it, and the diarrhœa was neglected and not restrained till, from its great irritations, the child fell into epileptic fits, and lay oppressed by them for several days, till her life was despaired of. For, as soon as she waked from a short sleep, she fell into a new fit, and then dozed again; which symptom, as SYDENHAM observes, is often the forerunner of death.

The child's nerves were so irritated that she had terrors upon the least noise, and would fall into fits even upon the opening or shutting of the chamber door hastily. But this case was cured in the following manner.

Fiat

Fiat fontanel. in nucha.

℞. *Pill. Matthæi* ʒss. *Affasætid.* ʒj. *Aq. puleg. Fænicul.* aa ʒijss. *M. Sumat. cochl. parvum,* i. e. a pap spoonful, *pro re nata, urgente dolore.*

A pap spoonful of this remedy was given once or twice a day, to take off the irritation, and the juices of the stomach and bowels were sweetened by taking plentifully powder of red coral in the pap, and other testaceous remedies; till the stools became consistent. By this method were these epileptic disorders cured in a little time.

I then advised a nurse, who had new wholesome milk (which I had found from experience to be the best method, both to keep the child quiet, and prevent its being bound) and by joining to the above method a little *lac ammoniac* and *affasætida* occasionally, to bring the bowels into a habit of doing their duty, and accustoming the glands to lead off the humours moderately that way, all return of the epileptic fits were prevented, and the child continued healthy, and well ever after.

Thus much will be sufficient to say concerning symptomatic epilepsies; which happen from the abovementioned causes. Epi-

lepsies, which are produced at the time of dentition, or which last till after puberty, will be taken notice of at those times of life. In the present cases, we have shewn how these diseases are cured, by a prudent management of such glandular secretions as are provided by nature at the period of life in which they happen.

And, as the intentions in symptomatic epileptic fits, with a constipation of the belly, are to bleed, to promote discharges by the belly moderately, to set on foot separations from the blood by fontanelles, blisters, *etc.* so, in case of an excessive diarrhœa, the intention is to sweeten and correct the acrimony of the stomach, and bowels, by the testaceous powders, and to strengthen, by gentle doses of rhubarb: observing in cases of great pain and irritation to quiet the spasms, by small doses of proper opiats, till the great symptoms disappear; for then we ought to lay that remedy, necessary in those great emergencies, aside.

For, I look upon it highly improper to administer opiats to children, on every trifling occasion; yet, when the irritation runs so high that it produces convulsions, and epileptic disorders, the great symptoms must be appeased,

appeased, to gain time enough to subdue the acrimony of the *primæ viæ*, byedulcorants; otherwise there can be no expectation of any future help; for the child will necessarily die of the fits.

Hitherto it has appeared clearly, that, the power of the heart, and all muscular force being weak, it was necessary to have a **weak** state of the solids, and thin diluted juices, that nature might go on easily with the ampliation of the vessels, and that animal growth might be thereby facilitated. But, to hinder this state of laxity, or weakness in the tone of the parts, from being carried too far, (which notwithstanding will very often produce diseases) nature furnishes the stomachs of young animals with an acid, which, like alum, tho' it will curdle milk, and by that means sometimes may produce a disease, yet it braces and keeps up the tone of the fibres, and prevents their going into an alkaline rottenness. This we see in the runnet of calves stomachs, and other animals. But, even this useful acid may be too predominant, and require correcting by the testaceous powders, and anti-acids; as I have before observed.

Amongst

Amongst the number of diseases, which arise from laxity of the tone of parts, aphthæ are to be numbered ; which affect chiefly children, and old people ; whose glands have lost their tone, as is evident by the stillicidia which trouble them.

For, the aphthæ of children, of which we are treating in this place, seem to differ from the aphthæ of adults ; which are often preceded by putrid, continual, or intermittent fevers. But, the aphthæ of children appear to me to be a disease, of the same nature with the red gum in the skin, different in this, chiefly, that aphthæ affect the internal glands. In this disease, the inside of the lips, the mouth, the fauces, and by degrees, the covering of the whole ductus alimentalis is spread over, with little white specks, which rub off, and appear again, resembling the little floating curds of milk, when turned. The child is sleepy, and, when awake, querulous, being teized by a sharp rheum ; which is separated by the glands, and in some cases produces a cough, hoarseness, fluxion upon the tracheal glands, and death. At other times, when the floughs of the intestines begin to cast off, dysenteric stools, and all the train of miseries, which
proceed

proceed from excoriated bowels, afflict the patient.

But, this does not proceed, as Dr. HARRIS thinks, from hot steams, which are sent up from the stomach to the mouth, as from a furnace; but from acrid humors; which fall upon the internal glands, and in high degrees of the distemper actually form slough, and scald the parts, like vitriol. This disease begins sometimes with a single pustule, or two, upon the lips or tongue, and spreads itself by degrees to other parts: At other times, the mouth is perfectly clear, and the glands of the stomach are affected, producing from the acrimony of the secretions there, the first symptom of a future thrush; I mean the hiccough; which afflicts the patient many days before the disease creeps up the gula, and shews itself on the back part of the mouth, or the lips. It is as long making its progress downwards, before it affects the intestines; which it does by means of the lymphatics of the diseased glands infecting others, like an herpes, throughout the whole alimentary tube.

And tho' the humor, which is separated by these apthose ulcers, is not usually so malignant, as that produced by fevers in adults,
yet

yet there is an instance, when it is applied to other glands, of its affecting them. For the glands of the areolæ round the nipples of nurses, who give suck to apthose children, become affected in the same manner as the lips of those they nurse. In mild diseases of this kind, the nurse's milk, and a diet of bread and water, to which the child ought to be constantly kept, generally dispose the apthose spots to slough or cast off, and heal. But sometimes I have known it happen otherwise, and the disease has proved fatal. In some bad cases I have known the following medicine of service ;

*Rx Aceti Vin. alb. aq. font. aa ℥iiij. solv. salu
p. j. Flo. Roris. marin. ℥j. Alumen.
Rupin. ℥iss. coq. in Ollâ vitrat. ad ℥x.
tum cola, et colat. adde Mel. Rosar. ℥j.*

Let the aphthæ be cleaned with this medicine, made warm, and the tongue and fauces rubbed over with a little fresh butter, and fine powdered loaf sugar ; the nurses nipples also should be defended by a cerate, after they have been washed clean, daily, with a soft mellow water ; and by this means both nurse and child are helped through this troublesome distemper.

In

In some children, we find at this time of life a fluxion brought upon the glands of the skin round the navel. But this chiefly proceeds from the carelessness of the nurse, who does not keep the salts of the sweat washed out, which therefore lodge on those parts that are rendered tender, and often impure, by the discharge, which is produced in digesting the umbilical cord.

And thus far I have endeavoured to proceed, step by step, with nature, and to shew how she proceeds in carrying on glandular secretions, from the birth of the child to the time of dentition; and it is worth remarking how nearly these observations agree with the following aphorism of HIPPOCRATES: *Secundum ætates autem hæc eveniunt. Parvis, et nuper natis puerulis, serpentia oris ulcera, vomitiones, tusses, vigilæ, pavores, umbilici inflammationes, aurium humiditates.*

Aph. 24. Sect. iii. HIPPOCRAT.

C H A P. III.

Of the state of the glands at dentition.

THE next period, which we have to consider, is that of dentition; which is also brought about by nature at her stated time, generally from the seventh to the tenth month; tho' it differs somewhat in particular habits, as they are more or less vigorous in their growth. During this period the nurses observe several pushes, or attempts of nature by plenitudes, to swell, and distend the parts about the tooth, which often rise and sink again before that painful work is brought about; for, nature is slow in ampliating the vessels, and distending the parts, that they may more easily yield to the tooth which is to push through them, after these fluxions abate.

And this I call the *first state* of dentition; when the tooth begins to mark the gum with a white spot. But, as the tooth is not produced till its enamel has been perfectly formed, and rendered hard enough to resist the injuries of the external air, etc. the parts, which in the mean time undergo those

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painful

painful and frequent distentions, are necessarily subject to great fluxions; which affect the tonsils, glands of the throat, and fauces; and produce coughs, and hoarseness, which last till the catarrh has discharged a vast quantity of pituita, and reduced the plenitude under which the child then labours. And in many cases, when this discharge is not sufficient, a diarrhœa breaks down and answers that end; especially about the cutting of the *dentes canini*, which are very sharp and pointed. If this does not happen, but the child continues bound, the brain very often is drawn into consent of pain, and the patient becomes epileptic.

These epileptic fits, from dentition, are cured by the surgeon's releasing the tooth, which gives the pain, and thereby easing the tension of the parts, which were swelled; by bleeding, if the head be affected, and keeping the body soluble with manna, oil of almonds, and syrup of violets.

A fever is often occasioned by this painful work; but HIPPOCRATES remarks, that these children are not apt to breed their teeth with convulsions, as many others are.

A fever from
dentition.

Quibus

Quibus in dentitione febres acuta accedit, parum convelluntur.

But I cannot pass over the good effects every body must have observed from the use of *spiritus c. c. gutt. Goddardian.* and such anti-acids as lessen the spasms, and do not bind; but promote a gentle diaphoresis.

Thus, I have led the reader through the first state of diseased glands in children; in which period we have found all the secretions sour and subacid, and from those observations may be directed to use such correcting remedies, as edulcorate the acidities, and are best suited to the fibres, in that weak tender state. For the stomachs of children are always acid, and most so, when their nerves are most irritated. The testaceous powders, therefore, coral, crabs eyes, chalk, etc. conjoined with a little rhubarb, are the best preservatives, against these disorders. We will now close the period of dentition also with an aphorism. ^a *Ad dentiendi vero tempus accedentibus gingivarum pruritus, febres, convulsiones, alvi profluvia, maximè quum caninos edunt dentes, iis præsertim pueris, qui crassissimi sunt, et qui alvo sunt dura.*

^a Vid. HIPPOCRAT. sect. iii. aphor. 25.

C H A P. IV.

Of the state of the glands betwixt dentition and puberty.

IN the next place, let us consider the state of the glands betwixt dentition and puberty, when nature is employing her weak instruments to carry on animal growth; and we shall there find, that the diseases necessarily produced are those which attend a state of lax and weak fibres. For tho' that watery and fluid habit of the child is a little changed, since nature has produced teeth, and the child is entered upon an alteration of its diet, and nourishment, yet those changes are made by slow degrees.

However, let us consider the infant grown a little stronger, and able to use more exercise, and see what effects are produced by those means. In that state we shall find that the adipose glands, being pressed and squeezed by the muscles, are kept within narrower limits, the muscular flesh becomes a little more carnous, and macilent, growing daily somewhat more close, and firmer in its texture. The external glands are strengthened

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by the impresson of the cold air, and rendered less liable to receive the fluxions of diseases.

But still, as it is the glandular system which must take off, in great measure the redundancies of the constitution, the glands will necessarily suffer most at this time of life. For, tho' the external glands, (as those of the skin) become now cleaner from their first impurities, which were thrown upon them; yet the internal glands become more loaded; and diseases of the tonsils, and uvula, shew themselves. These last disorders were counted by the antients also amongst those, which happen to children at or soon after dentition.

But, tho' the external glands appear more strengthened, and the skin less subject to excoriations than before this time; yet if they have suffered much from their first fluxions, betwixt dentition and puberty we generally discover new diseases, or possibly the old shew themselves again in the skin; and scorbutic or leprous eruptions, as they are called, begin to appear; which often retire, and shew themselves again at different times, occasionally, till the next great period of life, puberty, comes on. And these diseases of the
skin,

skin, if they are not cured at that time, are seldom afterwards perfectly subdued. I have indeed known some, but few instances, to the contrary.

In these obstinate cutaneous disorders, which very often will not yield to any method, at any time without relapsing, I have for many years endeavoured, from the colour of the scurff, or appearance of them, to class or range the eruptions in some order; to distinguish the most mild and curable from the more obstinate and incurable; but I have not been able perfectly to satisfy myself on this head, having cured many cases by sea water, etc. which appeared to me at first sight desperate; whilst others, of a seeming milder aspect, have proved very troublesome and sometimes incurable.

But in general, I think, they may be classed from their appearances, like aphthæ: the white eruptions not fixing deep, lightly scaling off, and not returning, are the mildest; the yellow next, if they do not fix deep in the skin; and lastly, the brown coloured, subfusc eruptions like the morpew, and all the gradations down to the dark coloured *American scrophula*; which, especially if they leave small foveæ like honey comb in the

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skin,

skin, are of the worst kind, and give the greatest trouble. But, as I said before, this appears not to be a constant and invariable rule to judge by.

The child having now run off his grossness by exercise, the strainers of the skin are closer, and do not admit of fluxions to come upon them so easily as before ; but the larger internal glands are now far more apt to be loaded, the tonsils begin to be remarkably enlarged ; and often shew the marks of a weak system of glands, and threaten the patient with a future scrophula ; for they often swell, and sink again, as the constitution is more or less crowded, and oppressed by fullness. They are not indeed so apt to inflame and apostemate as some other parts ; but, if they once are suffered to mature, are apt ever afterwards to go into suppurations, upon the slightest occasions. This is not only painful, but in its consequences sometimes dangerous ; and therefore should be prevented by those methods, which I have advised in my treatise, *De tabe glandulari* ; when the gland is in its inflammatory state. But, if the tonsil has already proceeded to maturation, the pus must be discharged ; and if the gland is much enlarged,

larged, and its tone spoiled by frequent and repeated fluxions upon it, the best method is to take advise with some skilful surgeon, and have it lessened by the operation : which is generally successful. As the following case was in the event cured by the operation, I will insert it.

History of matured tonsils.

A girl, from the fourth year of her age to puberty, had been subject to frequent fluxions on the tonsils ; and her mother had consulted many physicians on those occasions. The tumours often rose, and subsided again, till at length they matured ; from which time she was troubled with apostemations upon the slightest cold taken ; and sometimes was in danger of suffocation before they broke. In one of these illnesses I was consulted, and finding the tonsil suppurated, I advised the surgeon to discharge it ; and upon the tumour's subsiding, directed the use of the *Garg. de Pyrethro Fulleri* ; till the gland had purged itself, and recovered in some degree its strength : and then I advised them to consult some skilful surgeon about the operation. I heard soon after that she went to Mr.

GIRL in London, who did the operation very successfully, the patient having had no more complaints of that kind.

And thus much of diseased tonsils, and the slight ulcuscula which arise in children from apthose spots, and which are not attended with bad fevers. Ulcers of the tonsils, which are attended with fevers, and some of the worst kind, will be mentioned in their proper place. ^a *Ulcera tonsillarum infantibus periculosa.*

But some constitutions are more apt than others to have this fluxion upon the uvula; which often produces diseases of the tracheal glands, and brings on the *angina inflammatoria infantium*, than which I know nothing more fatal. It has been observed, that those children who are apt to cough on sucking, have their uvula larger than others; and very probably they are, from their natural formation, more liable to be diseased. When this part is too long and large, it is very troublesome and requires the hand of the surgeon, as much as the diseased tonsil. But, that we may not dwell too long upon this

^a HIPPOCRAT. De dentit. sect. iii.

subject,

subject, I will content myself with relating a case of a gentleman cured by this operation.

History of a pendulous uvula.

A gentleman of good family had been, during the greatest part of his life, subject to fluxions upon the tonsils and uvula. Under one of these cases I was consulted, and found all the back part of the throat and palate much inflamed, and the patient in an acute fever.

I advised repeated bleeding, and purging with *manna* and *sal Glauberi*; by which means the inflammation was cured, and the fever removed. But the uvula was left much relaxed, and was always, as he told me, pendulous; it gave him great trouble, brought on a cough and hoarseness, so that the glands of the trachea, and fistula pulmonalis, began to grow diseased, from a descent of the fluxion. To remedy this inconvenience, I advised the uvula to be clipt, and sea water drank daily to lead off the fluxion by the intestinal glands. This method had the desired effect; his cough, hoarseness, and all his former complaints, went off, and

he has continued free from those frequent relapses to which he was before subject.

Angina inflammatoria infantium.

But, if these fluxions are not at first restrained, and they fall down upon the lungs of children, they often produce the *angina inflammatoria*, before mentioned; which, as I have observed, is most apt to seize children from two years old to eight or ten; but chiefly the younger sort.

It is a general fluxion upon all the glands of the trachea, by which the whole fistula pulmonalis becomes inflamed. In this disease there is no external tumour to be perceived; but, if you look into the throat, you will find a redness upon the back part of the palate, and epiglottis; the glands are inflamed, dry, and incapable of separating their mucus. In some of these cases, the tonsils are affected, and there are little creeping ulcers, which spread about the larynx and alter the voice. A fever attends this disease, with great remissions; but upon every fresh access, the respiration becomes very short, and difficult, the child is forced to set up erect in its bed, or get up; when it cries is very hoarse; but often makes, upon every inspiration, a shrill, skreaking, or clanging sound; and if it is not instantly relieved
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by nature, or art, must dye. For tho' I have observed a truce from the bad symptoms, after the first bleeding, for some hours; yet, if there is a new access of the fever, instead of the parts continuing humid and being made easy by their own moisture, the old symptoms return again, and almost always destroy the patient.

I have seen this distemper carry off, very suddenly, several children in a family; which makes me suppose it communicable, like a measles cough. And indeed in some cases I have observed eruptions appear in the skin, but more commonly it happens without any. This fluxion is one of the most sudden and fatal that attend children, and its stages are hurried on with the greatest precipitancy; for, as the parts which it affects, are so constantly employed in breathing, and soon grow extremely dry, it seldom runs into an apostemation; but either ends soon in a *resolution*, or in a sphacelus of the lungs.

In these cases bleeding, lenitive purges, blisters, breathing through warm steams of pectoral decoctions, to relax the stricture of the vessels, and encourage the glands to separate their mucus, are the means of cure usually found most advantageous. But, if
sweats

sweats come on, and the parts are found at all relieved thereby; then lay aside all other evacuations, and trust to the diaphoresis only; which is usually critical, about the fifth or sixth day. Sometimes also the fever forms itself into an intermittent, which should be cured by the cortex; otherwise putrid aphthæ will be produced, and give new trouble of another kind. And thus much concerning the fluxions, which fall upon the tonsils and uvula.

The antients used to conceive, that ulcers formed upon the tonsils in the summer months were worst, and more apt to spread than those produced at other seasons. For my own part, I think I have observed, that both ulcers of that kind and pleuretic affections, have proved more obstinate in the spring season, and while the winds have been dry and easterly, or north-easterly, than when the air has been humid, and warmer. And I have thought a ruffling south west, or west wind, with torrents of rain to wash the country clean, has produced the most healthy seasons in Great Britain. This puts me in mind of the monkish saying; *Anglia ventosa; si non ventosa, venenosa.*

But,

But, to return to our subject. This debility of the vessels, which is a necessary concomitant of infancy and childhood, is productive, as we have seen, of many diseases ; which chiefly affect the glandular system. Besides, the glands are in themselves lax, and more apt to receive the fluxion than other parts.

Amongst the diseases which proceed from laxity we may number the rickets ; which, as authors have observed, seldom appears till the child is nine months old, and rarely lasts longer than the age of two years. Tho' I must own I have seen this disease last much longer ; especially when attended with an intermittent fever, which was brought on by the cachectic habit under which the child laboured. In some of these cases the bellies swelled, and the œdematous puffy look of the whole skin was taken off by a rupture of the lymphatics within, and the disease ended in a true ascites. This glandular affection, which appears to be a disease of childhood, is said to have first been taken notice of in Europe about the middle of the sixteenth century. Something I think like a luxation of the spine, from a large ricketty head, is hinted at by HIPPOCRATES, tho' he dont expressly

expresly mention the cause. *Vertebræ in occipitio introrsum luxationes, asthmata.*

This disease also is said to be most frequent in the northern parts of Europe ; and indeed, I believe, it always is most predominant in those situations, which, from their soaking the animal fibres in a damp air, and obstructing perspiration, are most apt to produce scurvies, and intermittent fevers. And, for this reason, Great Britain especially, and all the northern parts of Europe, are charged with being most frequent in the production of it.

In this disease the glands of the joints, and the heads of bones, receive the first fluxion ; the epiphyses of the bones, the wrists, the elbows, the knees, the heads of the tibias and fibulas, and the junctures of the ribs to the sternum, grow larger much than usual, and bunch out ; there appears a sodden œdematous look in the countenance ; the whole skin is bloated ; the muscular fibres are weak and flaccid ; the head grows vastly large, and the sutures of the skull are often very open, or unclosed. I remember to have seen a monstrous skull of this kind, as I guessed, in the possession of my learned friend Professor ALBINUS, at Leyden.

But

But this disease is not so often found amongst the children of poor, hard labouring people, as amongst the more opulent; unless it is brought upon them by a confinement to their go-cart, as they call it, or by neglect in nursing. More instances, however, of this misfortune are to be seen in Holland, than here. After some stomachic purges, the cure is to be obtained by a course of strengthening remedies; and where the countenance was pale and œdematous I have found *ens veneris*, joined with other medicines, of great service, and rhubarb from its acerbity seems to be the best cathartic.

There is one circumstance which very often, tho' not always, attends children labouring under this disease; and that is a laxity and rottenness of the gums, such as we see in scorbutic people. The nurses call this the canker in the mouth, and it is very often, if neglected, fatal. I have known frequently the teeth fall out, and ulcers spread upon the cheeks, till a mortified slough has appeared quite through: especially when the lymphatics of the glands of the upper lip became affected, I have seen loose mortified sloughs, on each side the frænum, creep up to the nostrils, affect the head, and destroy the patient.

tient. When these cases were taken in time I have known the Peruvian bark of very great service, keeping the ulcers well deterged at the same time, with *Spiritus cochlear. hortens.* mixed with *Mel Ægyptiac.* more or less, as the case required more or less deterging.

I remember when I was a young man, and in the pursuit of physic at London, Dr. How sent me to visit two relations of his at Hackney. They were under the care of a very negligent nurse, and both extremely ill. The hips etc. of one of the children were excoriated from impurities, occasioned by her neglecting to keep the child clean. The other had most of the teeth of the upper and lower jaw loose and falling out, from the putrid sloughs which had destroyed the gums. Upon reporting this to Dr. How, the children were instantly removed; one of them was saved, but, I think, the other dyed, from the progress of this distemper, not many days after. This is a great instance how fatal it often proves to young children, when their friends cannot frequently inspect the conduct of nurses, to whose care they commit that great charge of bringing up their posterity.

As I said before that I much doubted whether HIPPOCRATES did not hint at a disease
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of this kind, when he mentions the consequences of a luxated vertebra, I will relate a similar case, of which I had the inspection.

I was called to a girl about eleven years old, whose head was increased to so monstrous a degree by the rickets, and the chest so deformed, that she was not only asthmatic, but also had a palsy of the under lip produced by a luxation of the vertebra; which yielded daily to the weight of her head; insomuch that by indulgence in sitting in a bad posture she hung her head as it were between her knees. I was desirous to try what the surgeon could do to correct this bad structure of the trunk, by swinging and supporting the head by a collar. But, upon calling some time after to enquire how my patient went on, I was told I had mistaken the case; that she had a gentleman then with her, who was using spells; that he was boiling her water, and had assured them her real illness was that of being under an evil tongue; however, I enquired afterwards of the event, and heard that my patient was dead.

A palsy of the lower limbs from a luxation of the vertebra.

In these children you have strong marks of beginning scrophulas; the concatenated glands of the neck are usually diseased, the mesenteric

mesenteric glands vitiated, if they are examined after the patient's decease. But we may see how truly this disease proceeds from a lax tone of the solids, especially of the glandular substance of the brain, etc. from the observations authors have made. For it is remarked, that children who are heavy and corpulent, abounding with pituita, and whose brains are large, and the futures of the skull very open on the vertex, or crown of the head, are more subject to the rickets, to the scrophula, to epileptic fits, and have the whooping cough, and apthæ, in a more obstinate manner than other children. After purging with rhubarb sometime (for when I wrote this I had not tried sea water in this case) the cure is obtained by a course of strengthening remedies and cold bathing. I have known the following powders of great service.

R. Cort. Fraxin. ʒj. Cort. Winteran. ʒij. Rad. Osmund. regal. ʒij. Rhabarb. ʒij. Ent. Veneris ʒj. m. f. Pulv. in Chart. 24 distrib. quarum sumat j. primo mane quotidie per aliquot septiman. superbibendo Cochl. ij. Tinct. sequent.

R. Milleped. pp̄. ʒij. Sal Tart. ʒss. Croci ʒj. Vin. alb. ℥j. m. f. Tinct. tum per filtrum trajice.

But, to proceed with our enquiry into this period of life ; under this weak tone of the solids, the glands of the stomach and bowels of children are not only employed in easing the plenitudes, which frequently arise in their habits, by spontaneous diarrhœas, but divers diseases also in the primæ viæ are produced, from the acid humours, which abound in their stomachs and intestines. And, besides the acid ructus, colics, epilepsies, etc. before mentioned, the bowels are daubed over with four slimes, which not only inviscate the wind, and fill the belly with distentions, but afford nests also for round worms, ascarides, etc. to lodge their eggs in ; from whence are produced worm fevers, and diseases of that kind.

These disorders are cured by destroying the nests, and by purging off the slimes with rhubarb, a course of sea water, aloes, or other bitter purges : and, if these do not answer, by giving mercurials, vitriolics, acids, fixed alkalines, or the like ; whose caustic qualities will destroy the tender substance of the worms.

Betwixt dentition and puberty also, all the tumours of the strumous kind shew themselves most remarkably, which, unless they

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are carefully preserved from matter, seldom are cured even at the time of puberty. Tumours therefore of the concatenated glands of the neck, enlargements of the tonsils, lippitudes, strumæ in other parts of the body, internal swellings, tubercula of the lungs, diseases of the mesenteric glands, etc. are the complaints which appear in both sexes about this time; but, as they have been treated of in a former work, I shall not dwell upon that subject here.

Nevertheless it will be proper to observe, that under this lax state of the solids, as muscular force must be very weak, and act but feebly upon the fluids, so their vessels will not be endowed with a proper elastic force; and, as we have observed before, the blood will be in a pale watery state. Under these circumstances the cachectic habit will encrease, and obstructions in the whole glandular system will prevail, till the constitution undergoes some change; the face will appear puffed up, and bloated, and the whole body oftentimes œdematous, as we see in girls that have the green sickness.

Febris alba. And this *febris alba* or green sickness, which attacks young girls, from eight years old to fourteen, seems to me to be the first essay of nature to warm

the habit, and bring about menstruation; at least, menstruation is its usual cure. Menstruation, nevertheless, ought in general to be left to nature's time. For, as it cannot possibly continue under this weak state of the solids, and in this vitiated cachectic habit; to force these secretions before their proper time, will be, in my opinion, doing great mischief. Because at this early time of life, the vessels of the matrix are unfit to do their office, and every way unprepared to bring about this change, which by the order of things is appointed for a somewhat later date. And indeed, if by the use of medicines, menstruation be forced at eleven or twelve years old, as sometimes I have seen, yet, in our part of the world, it does not usually subsist; but, upon disappearing, frequently produces hysteric fits, or epileptic disorders; which usually return, and afflict the patient at times, till nature herself brings about the menstrual discharge in its proper season.

And, as we are now approaching to puberty, at which period this change happens to the habit, it will not be amiss previously to advise the young physician against forcing these secretions before their natural time and

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season.

season. For, under that state of unprepared vessels, and a vitiated habit, the strainers must suffer much by an untimely and imprudent use of steel, etc. and, if they are not burst, many times such obstructions will be formed in the glands, as never are got the better of afterwards. And indeed, I have often suspected many obstinate hysteric disorders, and sterility itself, to have had their foundations laid, by loading the constitution too early, and too much, with these remedies. Steel is a noble remedy ; but as it is a great and very efficacious one, so it requires the direction of a skilful physician to administer it. It is not possible to say, how many hæmoptoes are produced, how many tubercles of the lungs, and other parts, are matured, by the imprudent and unskilful use of this remedy. Till nature, therefore, favours the time of administering this great remedy, it would be more prudent and successful to content ourselves with keeping the bowels cleansed of their slimes, by a daily use of *elixir proprietatis*, or *tinctur. melampodii*, and if that method does not do, by joining calomel to stronger purges, at the time when that change is more easily brought about. For, when nature points out the time,

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chalybeates are then more safely used, till menstruation is brought about, and the blood rendered sane and healthy. I would not, however, be understood utterly to condemn the use of chalybeates, which doubtless may sometimes be absolutely necessary; but I believe indeed they are very often misused, even by our patients themselves. In cases where the habit is grown highly cachectic, it is difficult to cure without the help of chalybeates, but in diseased lungs, in diseased glands of all kinds, as well internal as external, if the patient is intemperately hot, and things seem to incline towards an inflammation, the use of steel ought carefully to be avoided.

I mention this with particular caution, because steel in the green sickness is become so common and celebrated a remedy, that mothers, nurses, and persons utter strangers to the science of physic, apply it in those cases upon their own bottom, and often do great mischief to the constitution by an untimely and imprudent use of it. A great quantity of this remedy will not do, when given out of nature's time; but a little will, if well timed and given judiciously.

For, when the new secretions, which are to be separated from the blood about puberty, begin to have their effect upon the heart, arteries, and whole habit, the power of the heart grows stronger, the arteries are endowed with greater elasticity; insomuch that in some pale diluted cases, where the capillary arteries are greatly distended, the whole body almost vibrates with one universal pulse, till the obstructed vessels of the uterus are broke through, and menstruation is brought about. At which time all the difficulties of shortness of breath, lassitude on moving, sickness at the stomach, unusual longings for trash; the pale and sometimes green œdematous look of the skin, with its pulsation, and which is especially in the neck, gradually disappear; and the patient becomes healthy and florid.

Hitherto we may pronounce the state of the animal body to have been that of laxity, where the cohesion of parts was very weak, easily disunited, subject to distentions and elongations, and of consequence liable to frequent fluxions, upon particular parts of the glandular system. And altho' this state was the most proper for infancy; when growth, and an elongation of the vessels, was necessary; yet, to carry animal fibres to that
firmness

firmness which is necessary to undergo a state of labour and exercise, and to last for seventy or a hundred years, there was something more requisite; and that was, to give a greater degree of elasticity, at the proper time of life. How that is brought about, with the advantages the constitution receives from it, will be the subject of the next chapter.

Having carried the reader on, from the time of dentition to that of puberty, and shewn him what parts of the glandular system are most apt to be diseased, at those times; as also, what methods nature takes, and what the physician ought to copy from her in relieving them; I shall close this period, (as I before have done, and design to do hereafter,) with one of the aphorisms of HIPPOCRATES: ^b *Ipsis vero grandiusculis, tonsillarum inflammationes, vertebræ in occipitio introrsum luxationes, asthmata, calculi, lumbrici rotundi, ascarides, verrucæ; præcipue vero antedicta.*

^b HIPPOCRAT. aphor. 26. Sect. iii.

C H A P. V.

*Of the state of the glands about the time of
puberty.*

HITHERTO we have observed, that altho' the projectile force of the heart was weak, yet the texture of the infant was proportionably less cohering than afterwards; that it was therefore easily dissolvable; that the bones, cartilages, and most of the solid parts of the body, not having their growth, (as the futures of the skull, etc. evidently shew) it was necessary there should be little or no opposition to the heart, and that upon this weak resistance to the powers of it, depended longitudinal growth. The diseases therefore which accompanied that state of the vessels were of necessity glandular; and such as we have mentioned; being in truth consequences of a too easy distention of the tubes employed in circulating the fluids; from whence a diminishing or loss of their elasticity, and for want of their acting with due power upon the fluids, obstructions, tumours, extravasations, and all the consequences,

quences, which the doctrine of tumours teaches us, must necessarily ensue.

For, tho' according to the order of providence, this state was necessary to facilitate longitudinal growth, yet it is possible, as we find by experience, to be carried into an excess. And we not only see tumours, and other diseases, produce from this cause, but very often many glandular secretions augmented too much; while other glands are often loaded or obstructed; as in illnesses of children, where the power of the heart has been so augmented for a time, by the violence of the disease, that a sudden and too hasty growth succeeds. In this case nature is put to great difficulties to nourish and supply the body with proper recruits. Under which circumstances the physician will find great advantage from the aid of sea bathing, the Peruvian cortex, preparations of vitriol, and other strengthening remedies; as they will restrain the large and undue secretions, by confirming the lax and weak tone of the solids, and by that means prevent an hectic habit, which would otherwise probably ensue.

We

We will suppose then, that at, or about, the age of fourteen, it was necessary that the state of debility should be changed, and grow firmer; and that a greater elasticity should be given to the vessels, as well as a greater degree of strength to the muscles, in order to enable man to execute vigorously those offices of life to which he was destined. For the effects of an encrease of muscular and vascular strength is of great consequence at this time. For, under this tender state of the bones, if the muscles act with their proper power on them, such furrows, or chanel, are worn, or impressed upon them, by the muscle, as give it not only the most advantageous insertion for its tendon that can be contrived, but greatly facilitate its action. The ligaments of the joints, growing firmer, keep the glands which are situated in the joints from growing too large, and by compressing them, assist in the separation of that liquor, which is necessary to lubricate and moisten the parts, and by that means prevent the heads of the bones from growing dry, and heating by friction. The luxuriant growth of the spongy heads of the bones are also by this means restrained. But let us see what

what diseases would ensue, if this change did not happen to the constitution.

First of all, the muscles having wrong directions, there must happen an incurvation of the bones, and an unequal growth of them, as in the rickets. Secondly, *spina ventosa* of the heads of bones. Thirdly, fluxions upon the glands of the joints, extravasations, ichors, which corrode and rot the bones, make their way out through the capsula of the joints, and end in an incurable fistula. These, and many other misfortunes, would happen, if there was not an increase of the animal powers at this time by some new secretions set on foot, to carry on the design of providence still farther.

The young person, therefore, being arrived at the age of fourteen, would often find himself labouring under insuperable difficulties, unless nature further lent her aid: many struma's, which had been hitherto unconquerable, many diseases of the skin, which had been ungovernable, would still subsist; and above all, that epilepsy which is caused by the glandular substance of the brain being diseased or strumous, would continue, and threaten the patient with paralytic, or apoplectic affections, or idiocy itself. All
which

which diseases, if they are not removed at this time, seldom afterwards receive a cure; altho' they very often are subdued, before and at this period, by a right management of the glandular secretions.

Let us see therefore what new aid nature brings to the constitution; and observe by what ways she often cures these diseases herself, and learn from this great mistress of our art, how to conduct ourselves, when we are called upon to exercise it. Here the reader will easily see what difficulty an author labours under, who is to write upon a point of this delicacy, and to conduct himself in such a manner as not to offend a chaste ear, without giving up the philosopher or the physician. I shall endeavour to observe the proper mean, as much as I am able.

At puberty therefore, several orders of glands, which I shall call by the general name of *incentive glands*, are set on work. I call them incentive, because they are destined to stimulate by their fluids those parts which are to be now enlarged, and excite both male and female to venery,

ut cupide generatim secula propagent.

The breasts of females are by degrees enlarged,

larged, and productive of venereal ideas, the catamenia appear, and all the parts of generation are carried to their greatest state of perfection. How great a share the ovaries have in the preparation of the animal for procreation, is seen by spaying of brutes; where all incitements of this kind cease, upon taking them away.

This of the female : In the male you find innumerable *animalcula*, lodged in the *semen masculinum*, almost as soon as it is formed or secreted : but, inasmuch as frequent repetitions of coition will render the recent semen of adults too thin, and consequently infecund, one would be inclined to think, that the original seeds also, not finding a fluid fit to rest in and unfold themselves, till about the fourteenth year, are, till that period of life, carried round with the common circulation of the juices.

The secretions of the incentive glands are rancid, and what the antients called hircine.
^a HIPPOCRATES called this state of the juices by that name, and says the youth begins *τραγίζειν*, and FESTUS calls young men, when they first come to their virility, *hircuitalli*, the secretions from these glands being

^a Epidem. 6. sect. iii.

rancid

rancid and strong, and, as HORACE expresses it,

gravis hirsutis cubat HIRCUS in alis.

And now the stop is put to longitudinal growth; gradually, betwixt the fourteenth and twenty first year of the person's life: for there is a necessity that these changes should be made almost insensibly, and not at one push or effort, if I may so express myself. The ancients esteemed longitudinal growth also to be finished at the age of twenty one years; ^b *Homo crescit in longitudinem ad annos usque ter septenos; tum deinde ad plenitudinem.* This great change in the habit of males seems to be made by the *semen masculinum*, which appears from experiments made on their castration. For, it is evident from thence, that the semen is not only necessary for procreation, but is productive of all that brawnyness, and muscular strength, which succeeds the elaboration of it. For that part of the elaborated semen, which is more than necessary for the use of generation, being returned by the vessels, saturates the whole habit, and, as Dr. WHARTON says, *nobilitates*

^b Vid. PLINY, lib. ii. c. 38.

the blood, and strengthens the nerves ;
 ‘ *Portio aliqua ejus [seminis scilicet] una cum humore aqueo in corpus reducitur, adeoque sanguinem ipsum nobilitat: qui partes omnes nervosas perluens, easdem magis quam antea foveat, oblectat, et corroborat.*

And, that the blood is saturated by this means, is very clear from the observations which the keepers of parks make on their bucks ; when they are in prime health, and there is a redundancy of humors secreted by all the incentive glands, at the time of rutting. For the fine flavour of the venison then ceases, and the flesh is rancid and of a very disagreeable taste ; insomuch, that if bucks are killed late in the season, the keepers tell me they are obliged to avoid cutting any of the lymphatics near the parts of generation, otherwise they shed out a yellow liquor, which is so disagreeable in taste and smell, that it affects all the parts it touches, and makes the flesh not eatable.

At rutting time, nature observes the following order in setting to work these incentive glands : first the testes begin to be considerably enlarged ; then the glands of the buck’s throat and neck swell, and continue in

‘ WHARTON, *De glandulis*, p. 187.

that

that state all the time nature employs largely those secretions. The next stage is, when the animal grows lean; the tumours then decline, and the parts return to their natural size and shape till the next year. It is clear therefore, that the blood is saturated by this means, and what effect it has upon the solids, as well as the fluids, will be seen from the following observations.

First, the blood having received that impression from the *semen masculinum*, gives a kind of gluten and strength to all the muscles; and the blood vessels are rendered tougher, and more elastic: next, as the heart and blood vessels grow stronger, they are able to perform a stronger trituration of the fluids, which are circulated through them: from that vigorous trituration there is an encrease of animal heat, and a change consequently made in the whole subject: for the pale, tender, soft habit of an infant, gives place to a more florid countenance, a finer skin, and greater bodily strength. And the loss of those beneficial aids eminently shews itself in the complexion of some castrated animals; as where the pale capon loses the florid look of the sprightly uncastrated bird.

The

The muscles therefore having acquired, from this new help, a great degree of brawnyness, the adipose glands are more strongly compressed, the habit grows firmer, leaner, and more fitted for all the active and laborious offices of life. And, because longitudinal growth is to be restrained, and the collateral branches of the vessels opened, and extended by slow degrees into thickness or bulk, so, that the constitution may not suffer from the fulness which might arise from the suppression of longitudinal growth, there are new secretions set on foot by nature in either sex, to take off these redundancies; the *semen masculinum* and menstruation.

In those constitutions, therefore, which have been so unhappy as to labour under diseases of the glands, and have not got cured from infancy to this time, the present seems to be the last effort that can be successfully made by nature to bring about their cure. For, as she is daily bringing about a period to longitudinal growth, during which they have received no benefit, their only chance left is in the future ampliation of the vessels. And, if they do not get rid of these complaints betwixt puberty, and the twenty-fifth year of their lives, they seldom are freed from them afterwards.

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I have known most obstinate hemicranies and headachs which have returned at times with great violence till puberty ; but received a perfect cure by nature at that time. The following case was a glandular petrefaction, betwixt the *dura* and *pia mater*, which occasioned the death of the patient : it was communicated to me by the reverend Mr. TREVEGAR, the son of Dr. TREVEGAR, who was the lady's physician, and present at the taking it out. The under side of the stone is flat, about the twentieth part of an inch thick, the upper convex ; the surface is rough, and porous, with a tomentose or wooly body, betwixt the granulated parts of the tumour, which looks like the lacerated involucra of so many small diseased glands. The figure of it is expressed in a copper plate^e.

This was taken out of the head of Mad. de L' HERMITAGE, wife to the agent for the states of Holland at London, in the presence of her physician, who has wrote upon it as follows : *Pierre, que s'est trouvée dans la tête de Mad. de l' Hermitage, entre la dure mere et la pie mere.* The lady had been for many years exceedingly afflicted with a constant headach, which had brought on epileptic

^e Plate I.

disorders,

disorders, and was finally the cause of her death.

This will let us see, when hemicranies, epilepsies, and other diseases of the head, which proceed from the pressure of the spines of bones; or when internal caries of the skull, extravasations which acquire acrimony, or such cases as this I have mentioned, happen, how impossible it is to cure them, unless the cause itself is taken away. Besides the diseases mentioned, scirrhus tumours are also found in the brain; two instances of which, as big as pullets eggs, are mentioned by Mr. CHESELDEN, in his Anatomy: and these tumours sometimes go into abscesses. But, where none of the foregoing causes can be assigned, I generally esteem the epilepsy, which attends persons till after puberty, to proceed from a strumous state of the brain; and I believe more of those cases would be cured, if they were treated as proper strumæ, than if any other method were pursued.

We see that this disease is often cured by nature at puberty, as well as other strumæ; we see also that the usual method is ineffectual; and therefore should look out for convenient helps from the trial of which no

danger can arise. And it seems to me, that we may reasonably consider an epilepsy in this light, if we allow the brain to be subject to the same accidents as other diseased glands; as we really find it is. Epileptic diseases are apt to form their great fits about the changes of the moon. And, when plenitudes arise in our habits, or in those of other animals, are they not remarked even by common observers, to shew themselves most about those times?

Lubrica nascentes implent conchyliæ lunæ^f.

An epilepsy is one of those diseases, which, from its obstinacy, has often been looked upon as incurable. But I doubt not that many more would be relieved from this disease, than at present are, if a due regard was had to the management of glandular secretions, and nature's times were more considered; not putting her upon a cure of that distemper at eight or nine years old, which is impossible for her to bring about till the time of puberty. The same turgescence arises in the habit to bring on epileptic fits, as in strumous habits to encrease at times their swellings, and both are generally most felt about the great changes

^f HORAT. Epist.

of

of the moon. An epilepsy is oftener cured by nature than by the physician; and that is done by her at the time of puberty in both sexes; after the same manner as she cures strumæ, by an ampliation of the vessels, and by setting on foot new secretions, to take off the redundancy that offends, and loads the delicate organ of the brain. The ampliation of the vessels, from hymeneal exercises, was observed by the antients; ^s *Nam si vir multum coëat, venæ sunt ampliores redditæ.*

And the custom amongst the ancients of measuring the bride's neck seems to have been founded on the same notion; to which CATULLUS alludes in the following lines:

^h *Non illam nutrix orienti luce revisens
Hesterno collum poterit circumdare filo.*

From what has been said I think it plainly appears, that muscular force is increased by the blood's saturation with the *semen masculinum*, and that therefore the muscular coats of the conglomerate glands must necessarily receive a great additional strength, about the time of puberty: So that, from the suppression of longitudinal growth, the chief hope

^s HIPPOCRAT. De nat. pueri, sect. xxii.

^h CATULL. de Nupt. Pelei et Thetidos, lin. 376.

of curing these diseases is founded upon the ampliation of the collateral vessels, and this great increase of the power of the muscles in the conglomerate glands.

Let us go on therefore hand in hand with nature, make use of those great helps, which are put into our power, at the proper time of life, and I doubt not, but those obstinate diseases, by time and experience, will be brought to as much certainty of cure as many others. I shall add to this part some cases of true epilepsies, cured about the time of puberty.

HISTORY I.

Of an epilepsy cured at puberty.

A youth was committed to my care, who laboured with epileptic fits, from the first months to the time of puberty. This was a true epilepsy, and terminated with foaming at the mouth, and other usual symptoms. I had not only done what I was able to do for him, but had also consulted the best physicians on his case, without the least benefit. The only supposed good, which could have happened from the methods taken, was, that by keeping the blood vessels, and lymphatics of the
brain,

brain, safe from ruptures, till puberty, the patient might not be cut off from the benefit which might be hoped from that great change. When this patient arrived at the age of fifteen years, he was seized with two most dangerous epileptic fits, in which we despaired of his life. The blood was thrown out into the extremities of the vessels with such violence during the fits, that the whole skin became red, and filled with specks like petechiæ, the conjunctiva in both eyes were striped with blood as after a concussion, and in this manner he lay like one thunder-struck, for two or three days: his urine and stools were involuntary, as was also the emission of semen in both fits. He was let blood, and such methods were used, as he had before found beneficial; but these were not attended with success. However, after his recovery out of these fits, he never had any return; but was cured of his epilepsy by nature upon this change of his constitution, the vessels having undergone their proper distensions.

H I S T O R Y II.

Another epileptic person cured at the time of puberty was a poor man's son, who had the falling sickness, or epilepsy, from the time

of dentition to puberty, and had been under my eye. I prescribed from time to time, and thought, when I gave him the fetid gums, castor, valerian root, and such remedies as tended to promote the hircine secretions, that he was worse for them, and had his fits more violent. However I omitted nothing of the common method; he tried the misleto, and other remedies, in vain, till after or about puberty; when he was cured by nature, and her efforts.

HISTORY III.

A third instance of an epilepsy cured at the time of puberty was in a youth, who had this disease from his infancy. It had eluded all the means which were used; his nerves had been so shocked by the fits, that he has to this time a vaccillatio, or half rotation of the head, which moves upon its axis, all the time he is awake, like the pendulum of a clock, and his spittle is apt to flow out at the side of his mouth. But all this mischief was done before he arrived at puberty. For upon the coming on of that great change in his habit, he was cured of his epilepsy, tho' the aforesaid

weak-

weaknesses remain, as marks of the violence of the disease.

HISTORY IV.

Of an epilepsy cured at the time of menstruation.

The daughter of a gentleman, had been epileptic from the time of dentition to puberty: all the usual methods had been tried, and she had notwithstanding very near expired in a fit at eleven years old, when there appeared a small shew of the menses; but they appeared no more till she was in the fourteenth year of her age. At which time she was seized with a violent epileptic fit, in which they thought she had been actually dead. I was instantly called, and found a pair of bead necklace about her neck, which, when the neck swelled during the time of the epileptic fit, had produced such a strangulation, that the blood was driven all over the neck and face, and was almost ready to force itself out of the capillary vessels; the skin was all over spread with purple specks, and her eyes were blood shot, as from a concussion. I removed the necklace instantly, and found her coming out of the fit. She was let blood, and the day after purged with
tinct.

tinēt. sac. et syrup. de spinâ cervin. There was no return of her epilepsy till a month after; during which time she had taken *elixir. proprietat. tart. et tinēt. assafætid. cum fuligine*, daily. At the month's end, she had a slight epileptic fit, when the menses broke down: the *elixir*, etc. was continued after the menses had ceased at proper times till the coming on of their next period, when they came plentifully, were afterwards regular, and the patient never has had any epileptic fits since.

In this case we see not only the ampliation of the vessels, but also a proper evacuation to relieve the habit of its fullness, was necessary to remove the disease. And indeed physicians may observe, that epileptic fits terminate sooner, and more easily to the patient, whenever the fluxion is turned off from the brain, by nature's having set on foot some glandular secretion in an encreased degree. For, when there happens to be a discharge by some few loose stools, by an emission of semen, or a great quantity of urine; and particularly, if the patient sweats plentifully, the paroxysm is less violent, and of shorter duration.

The habit being now strengthened, by the advantages of puberty, and the glands not suffering their secretions to slip through with so great facility as in their state of laxity, that salivose state of children and the liberal discharge by secretions from the glands of the nostrils, eyelids, etc. ceases. For the muscular coats of the glands and their sphincters, being stronger, are therefore not so liable to the weaknesses before mentioned; but that very alteration in their tone subjects them to diseases of another kind. Inflammatory disorders are now more apt to afflict the patient, as the redundancies are not so easily carried off; fevers are the frequent attendants of this part of life, and would oftner be so, did not nature substitute the two great changes in males and females at this time; and very often produce also spontaneous bleedings at the nose, to prevent these febrile attacks. But, if the inflammation rises to any degree, the glands almost always are concerned in receiving the crisis.

The plague, and all other pestilential fevers, are apt to make their deposits upon the glands of the larger emunctories. And tho' the inguinal glands are more apt to be infected in the *lues venerea*, that may be owing
to

to the vicinity of parts, the poison having been conveyed by the neighbouring lymphatics. But in fevers the glands of the neck, throat, thorax, lungs; or those of the mouth, and whole *ductus alimentalis*, are more usually affected; as are sometimes also those of the *axilla*, and groins.

Glands of the neck and throat subject to popular diseases.

It may not be improper to observe here, that the glands of the neck and throat, in both sexes, are subject to popular diseases; with which they are usually afflicted once at least in their life time: and this accident happens to other animals as well as to mankind.

But these diseases arise generally from transitions of eruptive fevers, which shift from the skin to those parts. The epidemic sore throats, which are often so fatal, appear to me to be of this kind. And, as I have two or three times seen this distemper appear and then cease for a time, I will give the most distinct and accurate account of it I can; that it may not be confounded with sore throats of another kind. The patient is seized with rigors; a pain of the back, head, and limbs; sometimes with symptomatic vomitings; but children oftener with a diarrhœa, which commonly goes on two or three days before there is

is any eruption in the skin ; and, if it lasts longer, very often no eruption at all appears ; but putrid sloughs fix upon the tonsils, and I doubt not, a kind of black thrush in many cases makes its progress through the whole alimental tube. This appears from sloughs brought up very deep, with hæmorrhages following them ; in which cases the crisis is internal, and generally fatal. But in many there is no diarrhœa, or it ceases soon ; and then the eruption appears in the skin, possessing sometimes only one particular part ; at other times covering with redness the whole face, neck, breast, and arms ; and in some persons spreading all over the body. At this time there is a remission of all the symptoms, the diarrhœa ceases, and the patient appears tolerably well. Under this light state of the distemper, if the eruptions continue four or five days in the skin, going off gradually, and leaving a branny desquamation after them, as in the scarlet fever ; the crisis is perfect, and nature should not be disturbed by any evacuation ; for the patient will do well. But, if the eruptions suddenly disappear upon the second or third day, the disease is resorp'd again into the blood, and most distressful symptoms follow. The patient

patient is awaked out of his sleep with sick fits, palpitation of the heart, swoonings, hurries in the head, and he starts at every noise. At this time also he finds his throat sore; which upon inspection is red, and inflamed; the tonsils, and parts about the larynx, appear scalded with the humour, oftentimes grow black, and mortify; a hoarseness comes on, with the complaint of a hardness rising in the throat, and crowding up of the gula; which is convulsive. The patient now begins to make large quantities of thin pale water, the brain is much affected, and the event generally death. This is the most unfavourable state of the disease.

But, many times there is a transition of the distemper from the glands of the skin to those of the neck, which swells externally: the face too is puffed up, and sometimes I have seen the eye-lids closed, as in an erysipelas. In these cases, tho' the parotids swell much, and the parts behind the ear are very painful; yet the disease usually terminates more favourably than where it is internal, and attended with those enraged symptoms above described; the fever lessens about the fifth day, and, as the disease appears externally, the nervous symptoms vanish, the throat grows easy, the patient swallows

swallows tolerably well, tho' with greater pain than in some of the more fatal cases; the sloughs generally (if there are any) lay not very deep, and cast off easily; the skin does its office; and the patient, by keeping his bed or chamber, soon recovers from danger, altho' the parotids continue swelled and tender for a great while.

Thus this illness, in its most dangerous circumstances, is attended with the same accidents as an erysipelas, of whose nature it seems to partake. If it be external, the event is commonly favourable; if internal, death generally ensues. The ancients seem to have observed the same thing: *a Si in angina tumor prius ad cutim, seu externas partes non apparuerit, mox vero appareat, fiet id per tumoris augmentum extrorsum; unde minus introrsum premet, et boni erit ominis.* Again HIPPOCRATES takes notice, that if the tumor appears externally in the neck, it is of good omen: *b Angina correpto, si tumor oriatur in collo, bonum; foras enim morbus vertitur.*

I must truly own, when the eruption appears kindly, I have hardly been able to distinguish this disease from the scarlet fever;

^a HIPPOCRAT. sect. vi. aphor. 37.

^b Sect. vii. aphor. 49.

except, I think, that it is generally more purpurine, and tends towards the look of petechiæ. When the humor first shifts from the skin, blisters on the legs, and moderate cordials, are proper. I have found also a moderate degree of warmth necessary for these patients, according to the degree of the distemper; a confinement to their beds, or chambers, till the crisis is over; and such treatment as in other eruptive fevers. I think those have done best, where the evacuations were used before the eruption appeared in the skin. If I have therefore been called in early, I have advised bleeding and giving a little manna; committing the business afterwards to nature, who then proceeds with less difficulty in disposing of the disease after her own way, being not so much oppressed with that fullness, which is apt to do great mischief on the first days of febricitants.

But in many cases, where the symptoms are very mild, I do not bleed at all; for I have observed the blood of these patients is not fizy, like those of pleuretics; but the texture appears rather loose and tender, and therefore do not require bleeding so much as inflammatory quinzies. I have remarked also, that many of the patients, whom I
have

have seen in danger, have been more hurt from an hasty and injudicious tampering with the crisis, before nature had sufficiently done her business, than from the sloughs. For the untimely purging to get rid of the tumour of the glands, has brought on a new fever, and the same work was to be done over again, at the utmost peril of the patient. For, these cases will not bear early purging, after the fever is dropt. And indeed I have observed that servants, for this reason, and poor people, who go about with the parotids hard and swelled, and commit the dissipation to nature, have done better, than those who have been too early in their use of purging physick. For the crisis of fevers are always dangerous things to puzzle or interrupt.

There is a great difference, therefore, between these cases, and *strumous parotids*; which last are stuffed with pituitous humors, and should by all means be prevented from maturing, and treated with evacuations, in the manner laid down in my treatise *on glandular consumptions*. But these malignant or *critical tumors* of the parotids should be left wholly to nature, or, if she points out a maturation, it should even be encouraged; and we should neither bleed, purge, nor use any

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revulsion.

revulsion. It will be found also, that tho' these tumours, when they come at the latter end of the disease, almost always save the patient's life; yet, if they appear early, on the first days, when the matter is crude, they are bad omens; so are they likewise, if they appear very late, when the patient's strength is worn out, and nature is too weak to throw off the disease. But I will give instances in two different cases, one from floughs, the other from disturbing the crisis.

I was called to visit a young lady about thirteen years old; she had been confined three or four days to her bed with a pestilent or epidemic angina; her fever was moderate, but both the tonsils were covered with yellow floughs, and much swelled; the throat, behind the uvula, tending to a swarthy red, seemed to be studded with little specks, like petechiæ.

As there had been no evacuations in the beginning, but a symptomatic vomiting, which she had on the first days, and which was then stopped, I pursued the intentions of nature, by digesting off the floughs with *mel. rosar. et tinct. myrrh.* and gave her *lapis contrayerb. et pulv. bezoardic.* twice a day in a
julap,

julap, and ordered her to drink of a *pectoral decoction cum sp. sal. armon.*

The tonsils cleansed easily, and looked well ; but the velamen of the throat proved sphacelated, and when the slough cast off, which happened about the tenth or eleventh day of her illness, an artery was opened, low in the throat ; a large flux of blood came on, she grew cold in the extremes ; had a small quick pulse, but no delirium, and died that night. It may be proper to observe, that on the fourth day from the invasion of the disease she bled at the nose, as also the day before she died.

Upon the whole, I think, we ought to be directed in this, as in other pestilential diseases ; if the physician is called in upon the first attack of the disease, before any bubo or tumor of the parotids appear, bleeding, a vomit and some lenient physick will be most proper to prepare the patient for his decumbiture. But, if he is called in after the tumours appear, they should be *in general* esteemed *critical*, and the business committed pretty much to nature. For, if it be glandular, it will not be always safe to return it ; if there be a slough, it must be digested out, which all evacuations will protract.

The next case was, where the patient was untimely purged, and the disease returned back into the blood. Whilst I attended a family, which had suffered much by this illness, they shewed me an apprentice who had newly got up from the same complaint: his fever was perfectly dropped, and his only complaint arose from the remains of large tumified tonsils. Upon seeing them, I advised him either to do nothing more then sip often of a warm pectoral drink, or encourage them to mature if they grew very painful. But his mother coming to see him out of the country that day, gave him an ounce of Glauber's salts upon her own judgment. After this purging, the tonsils immediately subsided, and the patient remained for some hours easy; but that night he was seized with new rigors; a most dangerous fever succeeded, with inflammation of his lungs, pain of his side, a scarlet eruption all over his breast, neck, and face, from which, after seventeen days, he escaped with the greatest hazard of his life.

And thus much, concerning that sort of epidemic quinsy, which is called *angina gangrænosæ*, and is thought by some to be what the Spaniards call *garatillo* — It may be remem-

remembered also, that there is besides this another species of quinsy, *angina inflammatoria infantium*, which is apt to seize children from two years old to eight or ten; but this has been taken notice of already.

There remains yet another disease of the glands of the throat and neck unspoken of, to which young persons are generally subject once in their lives; and that is a kind of *external angina*, which we call in English *the mumps*. And this distemper is a manifest indication of the transition of diseases from one part to another; of which the ancients also were very accurate observers. For they were very sensible of the affinity and great connection which subsists betwixt the glands of the neck, of the organs of speech, and of the thorax, with the testes: which occasions the signal alteration in the human voice, that happens at puberty. *Cum testis intumescit a tussi, memoriam renovat societatis pectoris, mammarum, genituræ, et vocis.* And again, *Tusses diuturnæ, superveniente testium tumore, cessant*ⁱ.

But whenever these glands come to be diseased with this external quinsy, the most troublesome part of the illness is when the tumour

ⁱ HIPPOCRAT. Epidem. lib. 2. sect. i.

is translated from thence to the testes, as in great numbers of boys it happens. This is a kind of epidemic quinsy, and is infectious, generally running through the whole family, and seizing those who have not had it in their infancy. For it spares those who have had it before. But, as it usually affects the external parts, it is seldom attended with fatal consequences; unless an accident happens upon returning the crisis too soon.

In this disease, the glands of the throat are affected; but principally the face, neck, and throat, externally down to the clavicle and scapulæ, which are puffed up, as if they had been suddenly inflated. Keeping warm a few days generally permits the disease to spend itself very safely; especially if some blood has been taken away, and the bowels were emptied by a clyster on the first coming of the fever.

But very often there is a translation of this morbid matter from the glands of the throat to the testicles, which is attended with great pain, tumour, and inflammation, and upon the return of the matter, before it is lodged upon the testicle, there arise often the same nervous symptoms as are mentioned in the preceding disease, on the return of the eruption

tion from the skin; tho' generally they are not in so great a degree. At this time the patient is usually delirious, and the fever is lighted up a-new: but all these symptoms cease again, as soon as the deposit is made upon the testicle; and there remains a hard, heavy tumour, without much pain. Where the inflammation is great, there is a necessity for bleeding: otherwise, I treat it as I did the swelled parotids; the patient must keep upon the bed, suspend the tumour, and wait some days before any attempt to purge it off.

For, tho' in many of these cases I have been obliged to bleed, and use other evacuations, upon which the tumour of the testicles has subsided; yet this is not always done without danger. Because as the tumour is critical, it will not bear to be returned too soon; for, upon its sudden disappearing, the patient again grows delirious; and I have seen one patient dye of a phrenitis from this cause, after it was thought that the danger of the disease was over. I subjoin, without apology, an history of this case.

I was called to a man, who had been seized with this fluxion which they call *the mumps*. The face, neck, down to the clavicle, and back to the scapula, were swelled,

as if they had been inflated. The tonsils were swelled, and inflamed within ; he had a fever, which abated upon the appearance of the tumour, so that nothing was done to the fourth day after the appearance of the swelling. At that time it began to decline, or rather to go off suddenly ; that very night he was seized with new rigors, his fever encreased, and a most painful tumour came upon the testicles. The surgeon had let him blood, an emollient cataplasim was applied to the tumour, and a lenitive clyster was given, which answered its end very well. He took also an emulsion with sperma ceti and nitre, for two or three days ; the patient was easy, his fever little or nothing ; the swelling upon the testicle much abated ; upon taking a lenitive purge or two, it went perfectly down, and we imagined the patient out of danger. But, upon the retiring of the swelling, new symptoms arose ; his fever returned, he grew delirious. Bleeding again was advised, he had blisters applied, and took such medicines as were proper to restrain the inflammation of the brain ; but the phrenitis encreased, and the man dyed in a few days.

As these translations are frequent in this
parti-

particular distemper, from the glands of the throat to those of the testes, so you may see it sometimes transferred from thence to the brain, whose glandular substance (I make no doubt) suffers in the same way. I would not be thought to condemn bleeding, blisters, and lenitive purges, in general; for they are often very necessary, and I think I have seen once or twice testicles mature, for want of their being properly used; I only mean to inculcate, that, where the symptoms of inflammation do not run high, keeping in a horizontal posture, and quiet for a few days, is the best method.

Having thus considered the state of the glands from the birth to puberty, and found that many diseases appear to have had their foundations laid during the weak, and lax state of infancy; let us proceed to the next period of life, and see how things go on, from the time of puberty to the thirty fifth year in males, and to the forty fifth or forty sixth in females.

And, as this is like voyaging in an unfrequented sea, I hope the reader will be contented with as exact a description as I can give him of the coasts; and suffer me to leave those, who come after, to satisfy him with accounts of the more interior parts of the country.

C H A P.

CHAP. VI.

Of the state of the glands from puberty to the thirty fifth year in males, and the forty fifth or forty sixth year in females.

THE next period therefore we are to consider, being from the time of puberty to the thirty fifth year in males, and to the forty sixth in females ; it will comprehend the time of life, when the machine is compleat, when all its juices are perfected, all its organs set at work, and fitted to answer the end designed by the great Author of our Being. And now, indeed (as I have already shewn in the first part of this work) if care has been taken to prevent matters being formed in any part of the glandular system, till nature has brought about, strongly and regularly, these great changes ; the constitution generally takes a healthy turn ; and under these circumstances this is the most healthy, as well as the most vigorous part of our lives. Altho' the mutability of our state often puts nature, at every season, and in the best constitutions, to the necessity of turning out of her usual way, to provide for sudden accidents. However people in general, under
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the above mentioned condition, and females particularly, are in good health; especially if they answer the great end of child-bearing, and give suck to their children.

In this there is also another wise provision of nature; which serves not only to nourish the child, and by the saccharine part of the milk stimulate the intestines, and so prevent a constipation of the belly; but it also supplies the defect of menstruation, which seldom happens during the time the nurse gives suck. The appetite of the mother, all this time, is usually good; she relishes all the enjoyments of life, as a reward of her motherly care; seldom complains of indigestion or fullness of stomach, as at other times, when near her menstrual periods; the glands of the breasts are largely employed in separating milk, and the habit of the nurse is kept in a healthy equilibrium; unless she gives suck too long, and brings her constitution beneath the standard of health. Then, indeed, those nervous symptoms, which attend inanition, usually appear; and the first signs of this condition are perceived by the skin's being not so plump, and by a falling off of the hair, upon combing the head; by a loss of appetite,
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and a leaden colour about the eyes. ^a *Quibus per tabem capilli defluunt a capite, ii fluxione alvi superveniente, moriuntur.* For, the constitution is, by that means, robbed of its nourishment, as much as when it is injured by too much venery, or too great an encrease of any other secretion, and will feel the same effects. For, the hairs are nourished by glands, and when they are robbed of that quantity of nourishment, which they should administer, the hair of course falls off. *Nemo ante veneris usum calvescit.* And a reflection of this nature was thrown out by the people upon CÆSAR, when he returned triumphant from one of his Gallic expeditions, *Urbani, servate uxores, mæchum calvum adducimus.* And these observations probably inclined the antients to believe, that the *semen masculinum* flowed from the brain to the testes. But to let us see how necessary it is to have this secretion by the glands of the breasts changed again to those of the matrix, at a proper time, we may observe, that the nurse it not accustomed to breed, till after the menses appear again.

As the diseases of the glands of the breast require no particular management, different

^a HIPPOCRAT. sect. v. aphor. 12.

from those rules laid down in my treatise *on glandular consumptions*; I shall omit saying any thing upon that head, unless it be this; as all glandular secretions should be promoted by degrees, so care should be taken not to have them suppressed too suddenly.

Thus much may suffice concerning the females; where we may have observed, that the redundancies of their constitutions are taken off by menstruation, and nursing their children, conjoined with the other usual evacuations. But in males the case is far otherwise; the firmness which is given to their habits, by the secretions set on foot at puberty, to enable them to undergo fatigue, and all the laborious tasks to which they are destined from that time of life, lays them under a necessity of performing their share of labour, or of paying the fine, in suffering a diminution of their health: so dangerous a thing it is to run counter to the institutions of nature.

As gestation, nursing, and those exercises, which are consistent with the softness and delicacy of the sex, are designed to be the lot of females; so labour, toil, rustication, and all the rougher scenes of life, are designed to be the portion of the male. And the observance of the order of nature, joined with a
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plain and simple diet, and a sparing use of vinous liquors, generally preserves the peasant who livest nearest to nature's institutes, in the same ease, and state of health, in which the females are, when they receive the benefit of nursing, and parturition; or when they are regularly helped by the advantage of menstruation.

But, if the glandular secretions, in the habits of the male, cannot be strongly and sufficiently performed (which is true) without exercise, and some degree of labour; I had almost said fatigue; what must become of the studious, and sedentary, and of all those men, whose occupations confine them to an inactive life? In those people, the constitution must be always hurt, and nature put upon continual difficulties. For, without the proper shocks given to the machine by exercise, there will be formed nephritic disorders; and, for want of a protrusion of the fæces, and a defect of the secretion in the bile, constipations of the belly will ensue; and from thence often diseases are brought upon the rectum; hæmorrhoids also; a tenesmus, and by consent of parts, very often strangueries, and diseases of the bladder will arise, with all that train of complaints which

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usually

usually attend persons of sedentary lives. The whole glandular system will become loaded, and strained, by daily plenitudes; which are unloaded sometimes upon the external glands, in blotches; at other times upon those of the stomach and bowels; in which last case they produce heart-burns, colics, diarrhœas, or, if the disease be not thrown off that way, various hypocondriac disorders shew themselves; unless the gout comes to the relief of these complaints. But under these circumstances, and in these affections of the intestines, I seldom find the disorders of the bowels disappear till the old heart-burn, with its usual companion the sour ructus, comes on again; and helps to break up the wind. Unless, as I before observed, there was a translation of the disease to other glands, and the patient, to give one instance out of many, was relieved by the gout, and I have often thought the following aphorism to be founded on this observation:

^b In diuturnis lævitatibus intestinorum, si ructus acidus superveniat, qui prius non extiterit, bonum est signum.

Thus we see, where the common secretions are not promoted by proper exercise in

^b HIPPOCRAT. aph. I. sect. vi.

males, there will be a redundance kept upon their habit; which, if it be not by some means or other taken off, by substituting proper aids, must of necessity be unloaded upon a particular part, and very often upon the glands of the joints.

To prevent this inconvenience which afflicts people of a sedentary life, (in which number many artificers and almost all studious persons are contained) some evacuations should be substituted; such, if it be possible, as the patient may comply with, and yet not be obliged to desist from his daily occupations. Upon this occasion the intestinal glands, and those of the kidneys, are the safest and easiest to make use of. Lord BACON much commends rhubarb to assist a protrusion of the fæces in studious persons. And in truth the chewing of that medicine in thin habits is an excellent remedy; but in those, who are more corpulent, gum pills, æthiops, cinna-bar, and in either case sea water, will be found beneficial: and these will generally palliate, and keep off chronical distempers for some time. For the gout it not properly the disease of childhood, or youth; altho' it sometimes may then shew itself. That happens rarely

rarely however ; for it much oftener makes its attack in the more advanced parts of life.

From the time of puberty, therefore, to the thirty fifth year in males, the greatest care should be taken to conduct properly the glandular secretions, if we would lay a foundation for a happy and comfortable old age.

For, if in the earliest part of life any obstructions in the glands have been formed, and their tubercula left undispersed ; now, about the above-mentioned period, is that time of life at which they are exposed to the greatest danger : partly from the increase of *animal heat*, and partly from the violence and impetuosity of youth. For at this age, youth is impatient and eager in the pursuit of pleasures ; all exercises are performed with violence ; and, what was intended by nature for our greatest good and benefit, becomes the very reverse, by their own excess and want of moderation.

The passions are now violent, and will not always bear to be restrained ; great disregard is usually shewn to every kind of prudence and of caution : hence excess in wine, venery, and banquetings ; the body is robbed of its accustomed perspiration by nocturnal riots, and keeping out of bed. These frequent

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quent changes of the *non-naturals*, which are the usual misfortunes of this time of life, must get the better of the best constitution : it must be perpetually put to difficulties, and if there is any part left weak, obstructed, or diseased, that will first suffer ; and, as we say, *the weakest will go to the wall*.

By these accidents and from these causes, diseases of particular parts are at this time formed. If the glands of the ear have been left obstructed by any internal strumæ, pain, apostemation, and often deafness ensues. If the ciliary glands have been left weak, and obstructed, lippitudes, and often diseases of the coats of the eye, happen. If the glands of the throat have been left weak, the tonsils are again enlarged, the concatenated glands of the neck swell, frequent strumæ appear, from the vessels being weakened, and strained. And, if those of the mesentery, and lungs, have suffered, or were formerly permitted to apostemate, hemoptoës and consumptions now are generally produced ; as the consequences of not taking due care to regulate those secretions properly in the early part of life.

For these tender habits, in the hands of a skilful physician, are like tender plants under
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the hands of a skilful gardener ; who, by knowing how to make a right use of heat and moisture, can promote or restrain their secretions, just as he pleases. And it seems to me, that this neglect is the reason why most of the patients, who are taken off by consumptions from internal maturations, dye betwixt this time of life and the thirty fifth year of their age. ^c *Tabes eis maximè ætati-
tibus fit, quæ a decimo octavo sunt anno ad
tricesimum quintum.*

From the causes before recited it will easily appear, that bleeding, temperance, and proper evacuations, as necessity requires, are the best securities against the accidents which happen at this time of life. But, that we may be directed by nature in the methods we are to take, let us observe how she operates, when left to herself. Under these circumstances she will attempt to relieve the habit, either by setting on foot a spontaneous looseness, which lasts till it has sufficiently answered its end ; or by a discharge of blood from the hæmorrhoids ; and indeed very often by both helps at once. And here I cannot but observe once more, what I have already often

^c HIPPOCRAT. sect. v. aphor. 13.

inculcated; I mean, how necessary it is, by any means, to run a disease of the lungs into a temporary disease of some other part, where less danger will ensue. For, if instead of the glandular secretions by the intestines, or the flux of blood by the hæmorrhoids, an hæmoptoe should ensue, the disease generally would prove fatal. But, as this has been already taken notice of, in my treatise *on glandular consumptions*, we will proceed to other glandular diseases, which are produced by congestion, and require great length of time to compleat their cure: particularly those of the cutaneous glands; many of which will either be apt to relapse, or, from the make of the strainers, are not curable at all. Such of them therefore, as are not cured at this important period of life, seldom are afterwards.

^d *Pueris autem plurimi morbi judicantur; alii, inter dies quadraginta; nonnulli, inter septem menses; quidam, inter annos septem; alii, ipsis ad pubertatem accedentibus. Qui vero pueris permanserint, neque circa pubertatem soluti fuerint, aut feminis, quum menstrua erumpunt, inveterascere consueverunt.*

From the time of puberty to the forty sixth year in females, the like accidents may

^d HIPPOCRAT. sect. iii. aphor. 28.

happen,

happen, altho' they are not so apt to fall into inflammatory diseases as the males; being secured, as I observed before, by the laxity of their tone, and the regularity of their menses, by breeding, and nursing their children. These things agree with another aphorism of HIPPOCRATES: *Adolescentes sanguinis expuitiones, tabes, febres acutæ, epilepsiæ, alique morbi; sed præcipuè nunc dicti, infestant.*

Having therefore considered the state of the glands from puberty to the thirty fifth year in males, and the forty sixth in females, we will suppose this the standard of their health; because now the constitution, or habit, is settled; and a person, by observing what does good or harm, may assist the physician a little in the government of himself; and without fixing any particular name to his habit, may find out that his health depends upon a due regularity in all the animal secretions. In this place we might not improperly observe, what are the consequences of errors in any of the particular secretions; and if we would carry things up to their beginning, we ought to consider the following heads.

^c Sect. xiv. aph. 29.

134 THE OECONOMY

1. Of the healthy state of the lacteals, and mesenteric glands.

2. Of their obstructions, and the consequence.

3. Of perspiration.

4. Of too much, or too little perspiration.

5. Of too large, or too little secretion by the kidneys.

6. Of the secretion of the bile, in too great or too little quantity, by the liver.

7. Of secretions by the intestinal glands, with the consequences of a paucity, or an excess of them.

8. Of secretions by the glands of the joints, and of the consequences of their being vitiated.

9. The state of the glands in females, under too much, or too little menstruation.

10. Of the state of the uterine glands, after menstruation is ceased.

But as these things, considered separately here, would break in upon the chain of this work ; we must give them some other place, and go on with our observations on the state of the glands, at the different stages of life, as we at first proposed.

C H A P. VII.

Of the state of the glands, from the before mentioned periods to the sixty third year, commonly called the GRAND CLIMACTERIC.

THAT we may reflect, therefore, how things have passed to the several periods before mentioned, let us remember, that *heat* and *moisture* had a great share in animation as well as vegetation, and that *native heat*, operating upon the fluids, and producing different degrees of rarification, was aiding and assisting to the powers of the heart, in unfolding and elongating the vessels. We have seen also, that it promoted dentition, and concurred in preparing the parts for menstruation in one sex; the *semen masculinum* in the other; and the organs of generation in both. And this great change was brought about at the time of puberty; when the gluten, which was added to the solids at that time of life, by secretions then set on foot, did slowly and by degrees put a stop to longitudinal growth, about the twenty first year of our lives. Afterwards we have seen, that, by the stronger action of the solids upon the fluids, there was a greater triture of their

parts ; native heat was encreased thereby ; a brisk juvenile circulation was preserved ; and of consequence a great flow and separation of animal spirits, and a strong perspiration, attended it. And this state was preserved without much decay till the thirty sixth year in males, and the great change was not made in females, till about the forty sixth year : after which periods the vigor of the constitution, or *animal functions*, will be found to decrease in both sexes.

In this chapter, therefore, we are to consider the subject, when the ardor and vigor of youth is abated, and the elasticity of the solids is in some degree lessened. For tho' they now grow more rigid, they are not so elastic, their fibres being hardened by time. And, when I say the fibres abate their elasticity, it may be proper to remark, that they sometimes go into *petrifications*, and very often grow bony ; as in the beginning of the aorta in stags, and sometimes in the aorta of very old men.

The fluids, therefore, begin now to be less strongly compressed, the circulation is more languid, fewer animal spirits are separated, and native heat, as well as muscular force, begins now to decline : so that as the lamp
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of life was from the birth to puberty in lighting up, which was fourteen years, we may have observed it shone in its greatest lustre from the fourteenth year to the thirty fifth in males, and the forty sixth in females, and then we shall perceive a gradual declension to the sixtieth. For tho' I shall follow others in placing the beginning of old age at sixty, it is nevertheless felt by most people before that time.

The heart, therefore, meeting with a greater resistance after the thirty fifth and forty sixth year, is no longer able to send the blood through the smallest capillaries, as it used to do in youth; but the *reticulum mucosum* is filled with a paler, pituitous lymph, and the scarf skin daily abates of that bloom, and efflorescence, which was before discovered under it, and charmed us so much in the prime of life. And this change is not only perceived in the *reticulum mucosum*, or net-work under the scarf skin; for the whole glandular system in some degree undergoes the same change. This is perceived in some constitutions sooner than others, according to the degree of muscular force. And tho' menstruation in females has not perfectly ceased, yet it is not so periodical,
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nor performed in such healthy manner, as it was wont: and upon that account, as I observed before, the whole glandular system suffers in a manifest degree. The breasts, which used to be augmented before the breaking down of the menstrual purgation, continue now to be distended longer than usual; and very often do not perfectly go down again, but continue larger, and are sometimes tender till the next return of the menses. The countenance is usually paler, and the whole habit tends again towards a cacochymia; as it did in girls labouring with the green sickness, before menstruation was brought about. The lymphatics being now loaded with serosities, the legs and face very often are puffed up and swoln; and the whole body sometimes becomes œdematous.

Under this state of the glands we are to fly to the same helps, as were used under the chlorosis. Purging with ecphractics, and steel, having generally the same effect in both cases. — But, as the *incentive glands* about this time of life abate their secretions (the retention of which produces choakings in the throat, and other hysteric affections) so strong smelling gums, allium, assafoetida, and such remedies as irritate and provoke these secretions,

tions, are of great service ; even more so than when they are used for girls, before menstruation has been brought about. And this appears to be the manner of governing the machine, directing the animal secretions in nature's own way, till she has provided other helps for the constitution, at this time of life.

In the sex, therefore, when parturition ceased, and there is a failure of the menstrual purgation, the glands are subject to new fluxions, and females are now more apt to be injured by them than males. Because the texture of the male, after the thirty fifth year, is firmer and stronger than that of the females ; is more subject indeed to inflammatory diseases, but not so apt to be injured by slow chronical congestions, as the females ; to which, on the other hand, they are subject from the softness and delicacy of their frame. Hence it comes to pass, that there are more glandular consumptions of males, before the thirty sixth year of their age, than at other times ; and of females after the forty sixth year. At which time also they are in more danger of suffering with scirrhus and cancerous tumours ; and of having strumæ shew themselves again in their necks, breasts, and other

other glandular parts. For, when menstruation ceases, very often the uterine glands, which shewed themselves before to be weak only betwixt each period of the menses, now become more loaded by the plenitude, which arises upon these first deficiencies; their sphincters by degrees lose the power of restraining, and the *fluor albus*, which was before very moderate, becomes now greatly encreased, and, if it continues long, brings the glands into a morbid state, and often ends in cancerous exulcerations.

From casting our eye upon the foregoing causes, we see the reason why timely bleeding, and purging, with the prudent use of sea-bathing, and other strengthening remedies, are of so great service at this time of life. I have seen some preparations of brass do good in these uterine complaints, and think the addition of *mel ægyptiacum* to proper injections, from the ærugo that is in it, is recommended by Dr. MEAD upon very just principles; as it not only cleanses, but corrugates and strengthens the parts.

At this time of life, therefore, we find the glandular system subject to new fluxions, many of which require great prudence in restraining,

straining, for I have frequently seen upon stopping the *fluor albus* too suddenly, without substituting an evacuation by the intestinal glands, that there has been a transition of the disease to other parts, and sometimes coughs and consumptions have been produced, from latent tubercula in the lungs; at other times, swellings have come upon the knees; in some of which there was only a loose swelling upon the adipose glands thrust out on each side of the knee, which often will interrupt the use of the muscles.

These tumors are best restrained, by giving some grains of calomel, camphire, and *sal. corn. cerv.* over night, and by purging with sea water the morning following; using an application of three parts sea water and one vinegar, with a proper bandage, to the part. Sometimes we see the heads of bones are enlarged from the fluxion; in which diseases I generally advise the use of emetics to be joined to the foregoing method. At other times, from the weakness of the ligaments, emphysematous tumours arise; for, as they through weakness give way too much to the rarefaction of the air contained in the fluids, they lose their elasticity, and by that means receive too much of those secretions of the joints, which

which were designed by nature to be no more in quantity, than should be sufficient to prevent the heads of the bones from heating by friction: and in these cases, I never found any thing do more good, than a *topical bathing* with sea water and vinegar, while the patient was under a constant course of purging with the same water.

And here it may not be improper to observe, that the before mentioned accidents come upon the female constitution, when the incentive glands begin to lessen their secretions; which may incline us to believe that the menstrual purgation ought not to be considered as a discharge of blood merely: but that other juices are sent off with it, which, if retained, would make very considerable changes in the habit. For, as the regular continuation of the menses contributes towards preserving that mollities and delicacy peculiar to the sex; so, where no disease succeeds the suppression of them, and the person continues in good health, their sex is as it were changed. They become viragos, and partake more of the sturdy habit of the male, than of the delicacy of the female; insomuch that HIPPOCRATES, when he says women are generally not subject to
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the gout, excepts those, whose menstruation is deficient. ^f *Mulier podagra non laborat, nisi ipsa menstrua defecerint.* He also mentions the cases of *Phaethusa*, and *Namysia*, as instances, where the sex was almost changed by a deficiency of menstruation.

Thus we see, as soon as muscular force abates, and the powers of the heart are weakened, the determination of the juices from the center, as physicians sometimes express it, to the circumference, is lessened; and many diseases will be formed; as consequences of an inversion of that which was accustomed to be separated by the skin. An extraordinary instance of this muscular debility is seen in castrated bucks; for, the secretions by the incentive glands being very little, they grow fat, and pulpy; lose their firmness, and with it their vigor also: they become cowards; and the extraordinary growth of the horns, which happened in the first year after castration, cannot be maintained; but as they are velvety and softer than other horns (tho' they never are dropt) they shrink at the top and are shorter; in two years lessen and seem inclinable to be without any palms. And, it was remarked in one of the castrated bucks,

^f HIPPOCRAT. sect. vi. aphor. 29.

which

which the keeper told me he did not cut clean, that, altho' one horn was shrunk a third part, yet the other preserved almost its entire and natural length.—It seems probable, therefore, that their decay was for want of a supply of those secretions, which forwarded their growth; and that the heart could not have force enough to throw or cast off either of the horns. I say probable; because I dare not venture to draw a general conclusion from one instance only.

At this time, therefore, begin the diseases, which necessarily accompany a diminished perspiration, and a weak performance of the circulation of the blood through the extreme capillary vessels; and these can be palliated no other way, than by such a prudent management of the other glandular secretions, as may secure the person from falling into a disease, before the tubes of the whole habit have been gradually widened, and rendered capable of bearing the burthen that is laid upon them, from those deficiencies. Evacuations, therefore, at this time of life are necessary to both sexes.

At this time also, the usual perspiration being lessened, and other secretions not being yet sufficiently enlarged, inverted scurvies

shew themselves, in various shapes : as scorbutic rheumatisms, heart-burns ; and at length in males the gout forms obstructions in the glands of the membranes of the joints. This is a new disease, peculiar almost to males, and to this time of life. For it attacks very few women or children, and eunuchs are thought to be entirely free from it. These circumstances point out, that the exemption from it arises from the weakness, softness, or laxity of the solids. And indeed, as this disease generally comes upon the patient at that time of life, when the solids begin to acquire some degree of rigidity ; it should caution us against the use of every thing that may tend to dry or harden them, either in our manner of living, or the remedies we use. Excess in wine, excess in venery, excess in all the high tasted foods, will be apt to produce frequent fits. And therefore the ancients used to reckon wine, venery, and inactivity, amongst the principal causes of the gout. For they thought indulgencies of that kind used to drain and dry up the *radical moisture*, according to their way of speaking.

And here it may be proper to remark, that the foundations of many hypochondriac disorders, and very often of the gout itself, are

laid in that part of life, which passes betwixt puberty and the abovementioned period, by the several excesses and intemperancies, which we have already recapitulated. For, by their means all the animal functions have been weakened, if not spoiled; their stomachs have been rendered cold and flimy; perspiration has been interrupted and lessened; the acrimony of which having been thrown upon the internal glands, produced heartburns, colics, and, from a constant vellication, all those uneasy sensations, which attend the miserable hypocondriac.

Most patients, I believe, if they reflect upon their own case, will find these observations true. In these cases the unlucky throws have already happened, and it requires a very skilful management of the glandular secretions, to regulate and conduct the future part of life, with ease and safety to the patient.

But, notwithstanding what has been said, I think all these cautions, which we have given, should be taken in a limited sense.

For, though moderate exercise will promote all animal secretions, and possibly contribute towards preventing the gout; yet I have known long walking, and hard exercise,
by

by wearying and weakening the parts, incline them to receive the first fluxion. And in some gentlemen, who were fond of hunting, shooting, and such exercises as wearied the lower limbs, and had the gout brought early upon them; I have, by restraining them from painful exercises, by temperance, and gentle evacuations, brought their fits from being very painful, and very frequent, to be much more tolerable, and their returns very seldom. Violent exercises, therefore, in gouty people are as injurious, as none at all.

To return to the consideration of the female. We see nature is put to a necessity of changing and altering things at this time; and that change is effected by a gradual distension of the collateral vessels. For, when the propellent force of the heart and arteries can no longer drive the blood through the blood-vessels of the uterus, at the accustomed times, the incumbent load is heaping upon the perpendicular tubes, till they are no longer able to sustain the weight; and then it breaks down in violent floodings. And, if that passage is denied, nature attempts an evacuation by the nose, or by the hæmorrhoids; and, if these benefits are also denied, an habitual diarrhœa is often set on foot; which continues, without

loss of spirits or strength, till the habit is equally distended, and the whole body brought to bear, without a disease, the loss of so great an help. Hence it should seem, that the great contrivance of the menstrual discharge was to irrigate the parts of generation ; but not absolutely necessary for the preservation or existence of the animal : because we see some viragos as healthy and more robust without it.

From the thirty fifth year therefore in males, and the forty fifth or forty sixth in females, to the sixtieth, or at the beginning of old age, if there are any glands of the lungs, liver, mesentery, or other parts, loaded with obstructions, they are not so liable to apostemations as in the earlier part of life. The native heat and vigour of the constitution beginning to abate, and tend to the infancy of old age ; excitements to venery are less ; fewer animal spirits are separated ; because the power of the heart and muscles abate. And as the muscles now grow more flaccid, and do not compress the parts so strongly, the adipose glands are less restrained, and the subject, as in infancy, is again inclined to grow fat ; his habit is pulpy, soft, and void of that brawnyness, which attends the earlier part of life. For, tho' the animal fibres grow
rigid

rigid by age, yet they lose their elasticity; and when their dryness or rigidity is arrived at any great degree, as happens often in the toes and extreme parts, they are no more useful, nor can be kept alive. Hence it happens, that the bark, steel, and vitriolic styptics, which are so successful in stopping mortifications, where the fault is from a different cause, prove ineffectual in such cases as proceed from rigidity.

But nature still will make a stand, and therefore endeavours to throw off the dead parts (as we see trees do their dead limbs,) when circulation can be no longer preserved in their tubes; and if these parts are removed by amputation, the remaining part of the tubes being unfit for circulation, and having lost their elasticity, will fall into the same disease. This is so well described by LUCRETIVS, that I shall make no apology for adding the lines :

Denique sæpe hominem paulatim cernimus ire :

Et membratim vitalem deperdere sensum.

In pedibus primum digitos livescere et ungues;

Inde pedes et crura mori : post inde per artus

Ire alios tractim gelidi vestigia lethi.

And this physicians and surgeons, too often, find to be the case; tho' they do every thing

possible within the limits of their profession. And this is no ground for finding fault either with the physician or his art ; for he pretends not to create, but to aid and assist the body, labouring with infirmities. In the case above, the use of the parts are destroyed and lost, and the circulation through the smallest vessels is impossible to be preserved, unless a power superior to that of man, should interpose.

The habit having at this time lost that elasticity which it had in the middle part of life, the soft glandular parts are under a necessity of receiving frequent chronical congestions, and of consequence must produce diseases of those parts in which they are seated ; as their muscular coats cannot any longer sufficiently press, and squeeze off their necessary secretions.

For, if the pulmonary glands are affected, they will produce a chronical asthma ; if those of the liver, a jaundice by compressing the biliary duct ; and often a dropsy by their lymphatics breaking, and shedding the lymph into the abdomen. And, if those of the chest should proceed to inflammation, they will produce fevers, pleurifies, peripneumonies, with all their attendants ; the cure
of

of which diseases are already treated of, under *the state of inflamed glands*, in my treatise on *glandular consumptions*.—But nature often relieves the patients, of both sexes, at this time, by fits of the gout, spontaneous fluxes of the belly, a flux of saliva, by urine, sweat, or the like; but often these very helps go into diseases, by being continued too long, or by being attended with acrimony. Hence cholerae, dysenteries, lenteries, hæmorrhoids, and often an incurable tenesmus; and these diseases are removed rather than cured, by changing, and transferring the disease, from one set of glands to another. The physician that would attempt a radical cure at this time of life, is aiming at what, I think, lies beyond the limits of his art.

But often diseases of the glands proceed so far, at this time of life, that the gout, which in males had hitherto brought relief, by disposing of plenitudes on the joints, can no longer serve him, the joints begin now to be formed into nodes, and their glands loaded with chalky concretions. The necessary secretions, being denied a passage by those ways through which they were accustomed to pass, their lymphatics become infected, and, instead of being a disease of a particular

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part,

part, it becomes now a disease of the whole glandular system; a gouty cachexia succeeds, and a most terrible *pruritus* comes on upon all the cutaneous glands, which throw out part of the disease in pimples, or little boils. But that being not sufficient to cure the patient, the cachectic state encreases, the patient looks pale, or of an olive colour, the lymphatics are all distended with a morbid lymph, the legs and face swell, an asthma is produced, and that dropfy, which is called *leucophlegmatia*, succeeds; till some of the lymphatics break, and shed their liquor into the chest, by which means a dropfy of the chest is formed; or those of the abdomen are burst, and produce the dropfy, called *ascites*. These things happen, unless strong painful fits of the gout can be produced, and the disease unloaded, and thrown off upon the extreme parts.

And, as I have before taken notice in another work ^g, of the great use it was to hydroptic patients, when the physician could drain the lymphatics, by setting on foot a large secretion by the kidneys; so in cachectic habits, after a few drastic purges, the cure is best finished by diuretics; amongst which the

^g *Dissertation on glandular consumptions.*

squill,

squill, or sea onion, may be esteemed a most excellent remedy. But after the lymphatics are drained, the tone of them should be strengthened by proper forms of steel, and stomachics, which will generally answer the end, when the vessels are not broken, and the machine is not quite spoiled. But, when the gouty habit is become so morbid, that the intestinal glands have been extremely weakened by frequent gouty fluxions upon them, they have as it were obtained an habitual custom of running off the disease that way : and then the regular fits of the gout become shorter, less painful, and at length it is with great difficulty they are formed at all ; but the gouty diarrhœa daily afflicts the patient ; to which a tenesmus, with dysenteric stools, frequently succeeds, and, unless a new fit of the gout can be produced, the painful stools can be appeased by opiates only, and the distemper proves at last mortal.

Having given this small sketch of the gout, as a picture of the transitions, which are made from place to place in chronical diseases, it will let us see that most of these cases admit only of a palliative cure ; and the physician, who would attempt a radical one,
is,

is, in my mind, aiming at a thing beyond his power.

But nevertheless he has here great opportunities of shewing the usefulness of his art. For, he can divert a fit of the gout very often from falling upon a principal part, and thereby prevent its proving fatal. He can restrain spontaneous fluxes of the belly within due bounds, as he restrained them in infancy; he can temper and correct the acrimony of the juices in the *primæ viæ*, and by that means palliate many complaints, and moderate even the pain of an incurable tenesmus. He can, by promoting particular secretions, defend some parts from being injured by irritating fluxions, and preserve others from becoming diseased through an excess of their secretions. He can defend the coats of the eye from sharp fluxions, the ear from some kinds of deafness, the bladder from tormenting stranguries, and can lend various other assistances to his fellow creatures, under their greatest sufferings. These are the real powers, and advantages, of this excellent, I had almost said divine, art; and yet how much, and how often is it abused by the ignorant pretenders to it, for want of understanding the machine they have
to

to manage, and the proper use of those weapons which they are to employ?

Thus have I given the reader a general idea of the proceedings of nature, in diseases of the glands, from the birth of the child to the sixty third year, commonly called the *grand climacteric*; which notion of climacteric years is supposed to have been derived from PYTHAGORAS.

Let us preserve the clue, therefore, and see, in our subsequent enquiry, how things go on from the sixty third year, or the *grand climacteric*, to the end of old age; closing this period also with an aphorism; ^h *ultra hanc ætatem provectis, asthmata, pleuritides, peripneumoniæ, lethargi, phrenitides, ardentes febres, diuturna alvi profluvia, cholerae, dysenteriae, lienteriae, hæmorrhoides.*

^h HIPPOCRAT, aph. 30. sect. iii.

C H A P. VIII.

Of the state of the glands from the grand climacteric to the end of old age.

FROM what has been advanced it appears, that many chronical diseases are the necessary consequences of our make, and must appear at different times of our lives; and that the cure of them consists rather in a skilful management of them, by the physician's directing and governing the secretions, as he sees occasion to alter them, than in any other thing. From this doctrine also it will appear, that the different temperaments of the antients, were no more than consequences of the abundance or paucity of particular secretions. If the *reticulum mucosum* was tinged with red, and discovered that efflorescence or bloom, which is seen in some complexions, it was called a *sanguine temperament*. If the lymphatics were loaded with pale ferosities, and the countenance looked sodden, it was called a *phlegmatic temperament*. If the lymph was tinged with yellow, it was bilious; and if the colour was still darker, and almost leaden, they called it *melancholy*. All which evidently appear to be
confe-

consequences of the too great or too little supply of the different secretions. To avoid dwelling therefore on these things, which are rather accidents, and happen to particular constitutions, not universally to the whole species ; let us go on to shew those things which happen in general to every constitution, and to all old people, as the consequences of the construction and frame of their body.

We have observed already, that the vessels by degrees lose their elasticity, and become not so capable of acting strongly upon the fluids, or of breaking their improper cohesions ; the fluids, therefore, cannot be so apt and fitted now for circulation as before. And, as this misfortune will daily encrease with old age, at this period men are subject to fall again into the diseases of infancy ; and, altho' they may have been so fortunate as to have none of the viscera loaded with obstructions, or injured from inflammations or apostemations in their past life, yet they now find difficulties of various kinds daily come upon them. The sphincters will lose their *retentive faculty*, and the weak glands will be attacked by the fluxions which attend old age : the eyes will be subject to rheums, the
glands.

glands of the trachea, to distillations; which will perpetually teize the patient with their secretions, producing coughs, shortness of breath, and wheezings. For, muscular force being weak in old people, their inspiration and expiration is performed with greater difficulty, and on that account expectoration, if wanted, is found very troublesome to the patient. Few animal spirits are separated, for which reason many secretions are not duly, or sufficiently, performed; and those defects draw a train of unavoidable accidents after them. If there is a deficiency of the mucus to defend the bladder, and urinary passages, from the rancid salts of the urine, great pain and difficulty will be felt in making water. If there is a deficiency of those secretions which ought to lubricate the joints, and defend the heads of the bones from friction, great difficulty and pain will be found on moving. Hence, stranguries, dysuries, and that crepitation of the bones on moving, are the unhappy companions of old age. In these cases marshmallow root, gum arabic, chio turpentine, and diacodiates, are the best palliative remedies.

And, tho' I have said the muscles grow flaccid, the glands weakened in their tone, and the sphincters of the vessels lose their
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power

power of restraining involuntary secretions, as is evident by the distillations from the eyes, and noses of old men, and a frequent call for micturition, and often an inability of retaining their urine; yet we must remember, what I have before observed, that some of the most elastic parts of the body grow now far too rigid, and will no longer yield to the laws of circulation; but are sometimes ossified. This happens, as I have said above, in the aorta of stags, and some very old men. And, these tubes being rendered unfit to carry on circulation, the juices of the body will be extremely altered thereby; and for that reason the ulcers of diabetical and scorbutic patients, are so apt to mortify, as are also their toes and extreme parts; which, like old trees arrived at their utmost vegetation, no longer admit the laws of circulation. For in short, all the canals destined to carry on circulation begin to be more obstructed and stopped up every day; stones are apt to be formed in the kidneys, bladder, and often in the *vesicula fellis*; from whence nephritic disorders, jaundice, and, for want of a proper separation of the bile, the fæces become bound, and as the powers to produce them
are

are now become weak, the patient grows vertiginous, and often apoplectic.

From the causes before mentioned, a general bad habit or cachexy is produced; perspiration is badly performed, and from the retained perspirable matter the *pruritus of old age* comes on, and proves very often as troublesome, as that in the gouty cachexy before mentioned.

For, as trees very often, either from weakness or old age, are subject to a diminished perspiration, and from that cause have their tubes obstructed, and, as it were, choaked up with their own juices: so likewise in old men, complaints of this nature are by no means uncommon, in this last period of their lives. If the perspirable matter is retained or condensed on the bark of weak or old plants, they grow scurfy, and are covered with moss, which still more impedes their perspiration, and hastens their decay. In this case, skilful gardeners always permit the plant to be well humected by rain, before they attempt to remove or rub off the scurf and moss, which were so injurious to the tree; but as soon as ever they have done that, they find the plant greatly relieved, its vegetation assisted, and its life often preserved.

In like manner, I am of opinion, we ought often to treat the cutaneous diseases of old men; and before we use the flesh brush, to scour the skin of its impurities, it would be proper to have the pores, which are closed up by a glutinous matter, unsealed (if I may so express myself) by the use of tepid bathing; which dissolves the viscidities, and renders them easier to be rubbed off by a rough cloth or flesh-brush, when the parts are dry.

In most of these cases, warm sea water is preferable to fresh water, because it deterges more. For when this complaint is encreased, and the skin is grown much diseased, it will not be cured by purging or bleeding, till the fault of the skin itself is corrected, and perspiration restored. This was the reason why Dr. SYDENHAM found a course of *electuarium de ovo*, and other perspiratives, given for forty days together, would cure a ferine *pruritus*, when bleeding and purging would not. And, as these complaints are teizing, and wear out the patient, it is natural for them to fly to opiates for their relief; which in old men generally injure, I might say, extinguish, *native heat*. In such cases, wine is the best opiate; an instance of which I shall subjoin in the following case.

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A worthy

A worthy clergyman, above eighty years of age, was so teized with the pruritus of old age, that he could not rest in bed ; but sat up in his chair for many weeks. His habit was cachectic, and his legs swelled so much in hanging them down, that they mortified. The surgeon being unable to procure any digestion, advised my being called in to his assistance. The mortification had spread, and the surgeon was obliged to make new scarifications. After the legs had been fomented, and dressed with warm dressings, I advised the patient to be put to bed ; but was answered, he could not lie there a quarter of an hour, because of an intolerable itching, when he grew warm, and pains in his feet and legs, which prevented his getting any sleep, except in his chair. The giving opiates in this case I feared would extinguish native heat, and not be likely to assist the surgeon in digestion. I therefore enquired of the servant what wine he drank, who told me he had good *sherry* in the house ; but his swelled legs made him afraid to drink it. I directed a bottle to be brought, and believe at times the patient drank three parts of it. When I perceived him a little flushed, and inclined to sleep, I had him put into bed ; and, if he

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grew

grew restless, advised them to give him more wine. When he was warmed with wine, the pruritus ceased, he got sleep, kept his bed all night, the legs were less swelled, and the surgeon's dressings began to adhere ; and, instead of being washed off by an acrid serum, they kept on till evening, after the legs had been fomented over the dressings. The patient was advised to drink of the *sherry*, whenever he was restless, and to keep his bed. This had the desired effect ; the wine was his opiate, it promoted perspiration, the swellings of the legs sunk, the surgeon digested out the sloughs, and healed the sores : and by the continuance of this method, and some warm anti-scorbutic medicines, joined with it, the patient recovered, and lived some years after in good health.

At this time also, as the muscles of the eyes grow weak and flaccid, the sphericity of the eye is no longer preserved ; for want of which there is a gradual decay of sight, cataracts, glaucomas, and other diseases of the eye now frequently appear ; and the drum of the ear, from the same causes, being no longer properly strung, hearing becomes very dull and imperfect : till by degrees the man is withdrawn from this gay scene of transient

L 2

things ;

things ; which as it stole upon him, and was opened to him by small degrees at first, so, that the mind might not sicken too much at the loss of it, is like a moving picture gradually withdrawn from him ; till he almost imperceptibly changes this temporary life for an eternal one : and this fatal necessity we must all undergo from our very formation, which is conformable to those unvariable laws of Providence, by which the succession of mankind is kept on foot.

Having therefore given you a short epitome of man, as far as the glandular secretions are concerned, we may observe, how nicely HIPPOCRATES had enquired into these events, when he declares ; ⁱ *Senibus spirandi difficultates ; destillationes cum tussi ; stranguriæ, dysuriæ ; articulorum dolores ; nephritides ; vertigines ; apoplexiæ ; mali corporis habitus ; pruritus totius corporis ; vigiliæ ; alvi, oculorum, et narium humiditates ; visus hebetudines ; glaucomata ; auditus gravis.*

Whoever therefore meditates on this order of things will soon be convinced, that he has a subject put into his hands which ought to be governed according to nature's laws and times ; and when he understands well what secretions

ⁱ HIPPOCRAT. aph. 31. sect. iii.

are to be promoted, what restrained, or what totally stopped; the *materia medica* will furnish him with proper remedies to answer all his purposes, and suitable helps will be found for the diseases of each time of life. He will not go on blundering in the dark, doubting what measures he is to take; but, provided the vessels are not broken, or too greatly obstructed, he will act with such a certainty and security in what he undertakes, that altho' he cannot give immortality, he will convince mankind of the usefulness, and greatness of his heart.

For there are numberless instances, where the physician has it in his power to govern and direct the secretions almost at his will. But, as there is no disease, wherein this truth is more evident than in the *lues venerea*, we will take a short view of that, and let it stand as a general hint for all the rest.

Let a secretion therefore be excited from the stimulus of the venereal poison (as in a gleet) which is the endeavour of nature to get rid of the disease; in that case, if the physician resolves to oppose the attempt of nature, and gives turpentine or glutinous medicines, to seal up the outlets of the vessels, the consequences will be these: the poison, not be-

ing washed off, because the proper outlets of the vessels are sealed up, will be distributed by the lymphatics to the glands of the neighbouring parts, and either an *hernia humoralis* will be formed in the testicle, a bubo in the groin, or something of that kind. If the physician then takes a resolution that it shall not ripen into matter, and by evacuations recalls the disease from these parts, then either the old running breaks down again, or very often the infection is carried deeper into the habit, and distributed upon the cutaneous glands; shewing itself upon the forehead in the form of a *corona veneris*, or else the whole skin is spotted over with a kind of venereal *lepra*. If under these circumstances the physician has again a mind to palliate the disease, and not let those uncomely appearances shew themselves in the skin, it is well known that repeated doses of mercury, taken till it excites large secretions by the salivary glands, till the gums grow turgid, and the glands of the chaps become loaded with the humour invited to those parts, will cause the eruptions in the skin to disappear, and the skin will become clean. But, if this discharge by the salivary glands is too small, or subsists only a little time, upon the ceasing
of

of it, the eruptions appear again in the skin. But, if the physician carries this remedy farther, and by mercurial unction excites a long and painful salivation, the disease is carried off by those secretions, and the patient cured; as in other diseases he is restored by sweats, urine, or stools.

Thus much I have ventured to say for the physician, and for the art of physic; but he must still remember, that as nature herself is bounded and restrained, so is he likewise circumscribed. For there are certain *limits, beyond which he cannot extend his art.* And this should satisfy the mind of every good man, and prevent his growing out of humour with the best profession, or resolving, because he cannot cure all diseases, to be concerned in aiding none.

For, as there are many milder cases which he can cure, so there are many also, which are beyond his art, tho' ¹ ÆSCULAPIUS himself was to administer the medicine.

^k *Quos ultra transire nefas.*

¹ *Afferat ipse licet sacras Epidaurius herbas.*

APHORISMS.

1. **G**OD created man and breathed into him the breath of life, &c.

2. From the first conception we may have of the animal to the ultimate date of his life, he seems to be actuated by an internal principle, which I shall call NATURE.

3. Nature therefore brings about all the events, which happen in an animal body, by slow, but stated laws, at stated times.

4. These laws are certain from the animal-cule to the child, when it is born with nails, hair, &c. and is become perfect.

5. At the birth the whole habit is lax, weak, little coherent, and more easily dissolvable in water than afterwards.

6. From the birth, nature is constantly employed in an extension and amplification of its vessels, or tubes.

7. Fire or heat, and water or moisture, are the two most probable instruments she employs in this work,

8. Plenitudes

8. Plenitudes must arise from the first application of these, towards extension, nutrition, and growth of parts.

9. The glands are supposed not only to separate fluids necessary to the life of the animal, but to discharge redundancies also.

10. As the carnous fibres grow stronger, the adipose glands are more compressed, and therefore the fat, glandular, soft habit of children, yields to a more firm one, as age comes on.

11. Nature is restrained, and obliged to act by such laws, as the great AUTHOR of our BEING first imposed upon her.

12. Nature therefore acts according to the powers, or instruments, which are put into her hands, and consequently great care should be taken by the physician, that she is not put upon impossibilities.

13. Her instruments therefore being weak, till about the fourteenth year, some secretions ought to be governed accordingly, and not forced before their proper time.

14. About puberty the carnous fibres are strengthened; they become more cohesive,
and

and the connection of them is stronger, and the muscles are more brawny; from the gluten with which the blood is daily enriched by secretions set on foot at that time.

15. By the stronger action of the solids upon the fluids, the fluids undergo a stronger attrition, and animal-heat is encreased thereby.

16. From the causes before mentioned, there is a greater separation of animal spirits, and all animal functions are performed more strongly and vigorously.

17. The state of manliness encreases, and continues till the decline of life; when there becomes again a paucity of those secretions, which produced brawnyness and muscular strength.

18. For want of which supply, muscular force again abates; the attrition of the fluids is less; native or animal heat decreases, till in very old age the fluids which are secreted become effœte.

—— *Gelidus, tardante senectâ,
Sanguis hebet, frigentque effœto in corpore vires.*

The muscles daily decrease in their strength; grow slackened, have few spirits sent into them,

them, and perform their offices but weakly ; even the generous horse grows crest-fallen ^a. And all these changes happen according to the different stages of life.

^a *Sicut fortis equus, spatio qui sæpe supremo
Vicit olympia, nunc senio confectus quiescet.*

OF
SOME ANTISTRUMOUS REMEDIES
USED BY THE ANTIENTS;
ALSO OF
TEPID BATHING, AND SEA BATHING:
AN EPISTOLARY DISSERTATION
TO
RICHARD FREWIN, M. D.

Multa renascentur, quæ jam cecidere —

20

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DOCTOR RUSSELL

TO

DOCTOR FREWIN.

SIR,

THE continued marks of your friendship would be reason sufficient for my addressing these papers to you ; but the reputation you possess in your profession, is a farther motive for my not trusting them abroad, till they have passed through the hands and inspection of yourself and some other friends.

As the doctrine of diseased glands, with the cures laid down in my treatise upon glandular consumptions, has met with the approbation of the public ; I have examined the remedies which the ancients employed in those diseases, and made some improvements upon their method ; which I now take the liberty to lay before you, as an addition and ornament to the foregoing work. The inaccuracy

curacy of the translators of my book has made me a debtor for this to the public. I am sorry it is forced from me *raptim*; but if you approve of it, I know the world will; and I shall have no diffidence of the performance.

It is a clear thing with me, that the improvements we are to expect in our profession, must arise from giving due attention to the remedies recommended to us by our forefathers. The first discoveries in physic took their rise from observations of what did good or harm, in particular diseases; and I make no doubt but all the remedies, which have been handed down to us from the antients, had more or less this same foundation. It is our fault, we have not carried their experience farther.

An enquiry, therefore, into the true virtues of these remedies, is setting out upon the observations of the antients; and is the most probable way for us to improve what they have taught. They knew a great deal, but not all. *Vita brevis, ars longa*, is an aphorism to put us in mind, that one age is not sufficient to carry these enquiries into perfection. There may be a discovery made of a peruvian bark, or a new medicine for any other particular

ticular disease ; but this is to be looked upon as an accident, that we are not to expect every day. In reviewing the antient medicine, we have from their works some guide to our enquiries ; and if the subject has not been exhausted, we shall generally improve it. Let us not therefore wholly give up this point, but consider the great pains which were taken to transmit them to us.

The antients not only preserved them on tables, and placed them in their temples, but even their oracles, whose authority was great, did not disdain to recommend them.

^a *Nunc, Dea, nunc succurre mihi ; nam posse
mederi,*

Picta docet templis multa tabella tuis.

And this method, of recording medicines and cures in their temples, was not only frequent amongst the Grecians, but took place also in Italy, as PLINY testifies : ^b *Mos fuit liberatos morbis in templo ejus Dei, quid auxiliatum esset, scribere.*

Which custom remained amongst the Romans even to the time of the emperor ANTONINUS. For HIERONYMUS MERCURIALIS has

^a Tibull. l. i, El. 3. ^b Plin. *Nat. Hist.* lib. xxix. c. 1.

preserved to us some of these inscriptions, wrote in ANTONINUS's reign, and found in the temple of ÆSCULAPIUS at Rome. In which inscriptions you find recorded, not only the cures effected, but also the remedies, which the oracle directed to be used. After he has given an account of one CAIUS, a blind man, that was cured miraculously at the Altar, in the time of ANTONINUS, he subjoins the two following cases. *Lucio affecto lateris dolore, et desperatio à cunctis hominibus, ex oraculo reddidit Deus, veniret, et ex ara tolleret cinerem, et una cum vino commisceret, et poneret supra latus; et convaluit, et publice gratias egit Deo, et populus gratulatus est illi.* Where the oracle, or whoever gave those answers, directed ashes from the altar to be mixed with wine, for a pain in the side: which is a good lixivial *fotus*; and if it was prescribed by a modern, would be only mended by adding to it some few spicy or carminative drugs. Again, you find the oracle directing pine-nuts to be taken from the altar and used by JULIAN, for the throwing off blood. *Sanguinem revomenti Juliano, desperato ab omnibus hominibus, ex oraculo respondit Deus, veniret, et ex ara caperet nucleos pini, et comederet una cum melle per tres dies; et convaluit, et*
veniens

veniens publicè egit gratias, præfente populo. And is not honey, and the *balsam. locatelli*, and are not other preparations of turpentine, given at this day to close the vessels, after bruises, and in spitting of blood. I could name numbers of other instances where the very remedies, which were used in the early days of physic are continued in practice, and preserve their reputation to this time.

These are sufficient reasons for us to suppose, that the antient medicines stand upon the foundation of observation and experience. Therefore, as I have observed before, that most of the medicines the antients used in diseased glands, were taken from the sea, let us patiently examine them, and see if they have exhausted that subject: and when we have well considered this point, and made ourselves masters of these weapons, go on in our pursuit of that science; which can only be attained by learning the true use of the *materia medica*.

I have observed in my former work, that most of those remedies, which the antients used in diseases of the glands, were such as tended to correct acidities in the *primæ viæ*, and to prepare a sweet edulcorate chyle. And indeed we have learnt from experience, of

what of great consequence absorbents are, in correcting the state of the juices in these parts: in children especially we cannot go on without them. But one inconvenience generally arises from the use of them, which is, they constipate the belly; and this we are forced to help by giving rhubarb, or some purging remedy, and then proceed with these testaceous or cretaceous powders again, till a new constipation of the belly arises. But in some cases, where the nerves have been much irritated, I have found that even rhubarb stimulated too much, and left the patient bound, after the effect was over. I had therefore considered in my mind, what method I should contrive to prevent this misfortune, and by those means go on with these most useful remedies, without undoing to day, what I had been labouring to effect yesterday.

At length finding some sea-chalk, whose pores had been open, and by rolling up and down in the sea, had been left to dry on the hot beach in the sun, and again wetted and soaked in the sea water, till its pores were highly saturated with sea-salt; I tried it, taken in water, for the heart-burn; and found it
cured

cured my heart-burn, and did not lock me up, like other chalk.

I then caused some sea chalk to be well levigated on a porphyry with sea water, and dried in the sun; then rubbed again with sea water, and insolated; repeating the operation, till it was sufficiently saturated with sea salts: and this I found answered the same end as common chalk, and did not bind me. I then tried it in some worm cases: and I think, it is an excellent remedy to sweeten and correct the acidities of the *primæ viæ*; and is also good against worms. The pieces you find on the sea shore, if the pores are well saturated, are heavier, when dried, than common chalk. Sailors and dancers on the rope use it to chalk their pumps; that they may not slip: because the salts contained in it are apt to keep it damp.---But enough has been said upon the subject of sea chalk.

Of BITUMEN.

As I have observed, that sea-water abounds with bituminous particles, and that I had the concurrence of several writers, that such particles contribute towards the discussion and dissipating humours, that were lodged and

had formed obstructions in the glands ; so I have from time to time made experiments, to try what external help I could find from *bitumen* in those obstinate diseases, as well as the great benefit I had found from it, given with sea-water internally. Remedies are the physician's weapons, to combat diseases ; and a man of science will always try how far he can carry the utility of them.

The eastern people formerly made great use of this drug. Therefore, that we may come to the best knowledge we can of the materials we use, let us see what experience the antient physicians had of it, and what they have handed down to us on this head. And of this medicine they had divers sorts. First, the black and white amber : which the Syrians used to call *barpax*. ^c *In Syria quoque fœminas verticillos inde facere ; et vocare barpaga, quia folia et paleas, vestiumque fimbrias rapiat.* This was not only worn in dress, but was also used in medicine: it was worn as an amulet by their children ; it was taken against incontinency of urine ; and by *lymphatici*, to prevent madness. The fumes of it were esteemed, as we use oil of amber now, in hysteric paroxysms. It was

^c Plin. *Nat. Hist.* lib. xxxvii. c. 2.

supposed to flow liquid from its first production, and to obtain its hardness by rolling about in the water; receiving the various bodies, which are found in it, when it was in its liquid form. ^d *Cum ergo fonte suo scaturit bitumen id, molle adhuc, et liquidum obvia quæque amplectitur, retinet, includit. Fluctu vero lambente in altum pervolutum, maris vertigine ac salsugine, temporisque diuturnitate durefcit, ut apud nos pisasphaltum; et jam tum succinum est.*

The second sort of *bitumen* was what they called the *naphtha* or liquid *bitumen*; which they say flowed from fountains about Babylon, and was called sometimes live-oil, as the following lines express:

*Vulcano condita domus, cui subter eunti
Stagna sedent, venis OLEOQUE madentia VIVO.*

And this *oleum terræ* seems to have been of the same nature with what the Indians call *miniac tennah*; which ^e BONTIUS says the Indians esteemed as an excellent remedy in all cold affections of the nerves and muscles, and used it against strangulations; as we do the chemical oil of *succinum* at this time.

^d Plin. *Nat. Hist.* lib. xxxvii. cap. 2.

^e Jacob. Bont. *Method. Medend. Indic.* cap. 1.

The third was their *bitumen Judaicum*; which some suppose to be the *karabe* of Sodom, or the funeral gum. The eastern people were so fond of this *bitumen*, supposing it to resist the putrefaction of bodies, that the poorer sort of people, from the plenty of it, used to embalm their dead with it; and the *mumia* of AVICEN is supposed to be a kind of *pissasphaltum*.

But this does not seem to have been the kind of embalming most esteemed, or what was in fashion amongst the rich and great; who had the most costly gums, and aromatics, made use of in their embalmments: as the use of the *amomum* makes appear. STATIUS therefore calls this, *triste amomum*. And PERSIUS says^f;

*Beatulus alto
Compositus lecto, crassisque lutatus amomis,
In portam rigidos calces extendit. —*

And JUVENAL,

*Et matutino sudans Crispinus amomo,
Quantum vix redolent duo funera. —*

It has sometimes been a doubt with me, whether the word *amomum* was not used to

^f Pref. Sat. iii. 104. ^g Juven. Sat. vi. 108.

express aromatic or odorous bodies in general: as when OVID says;

^h *Atque ea [ossa] cum foliis et amomi pulvere
misce :*

Which seems to have been some compound powder distinguished by that name: the same author has the following lines;

ⁱ *Ille tibi exequias et magni funus honoris
Fecit, et in gelidos vertit amoma sinus ;
Diluit et lacrymis mærens unguente profusis,
Ossaque vicinâ condita textit humo. —*

The derivation of our word *mummy* from this original is pretty obvious.

The ancients not only used *bitumen* in embalming, but for various kinds of diseases. It was used, PLINY says, *contra lepras, lichenas, pruritusque corporum*. In another place he says it was given in dysenteries, to stop fluxes of the belly, and mixed with myrrh against quartan agues. And as we give mummy now to persons shocked by falls, so they gave *bitumen* and vinegar to dissolve con-creted blood.

The custom of burning this for a fumigation was also very frequent, when their

† Ovid. Trist. iii. Eleg. 3. † Ovid. c. i. Epist. ix. *Maxim.*
nerves

nerves had been injured by the eastern luxury of using high perfumes, to which they were much addicted. And these disorders they used to remedy by burning the hair of the goat's beard mixt with *bitumen*, with the same success as we burn feathers, or the hoofs of animals, under the noses of hysteric patients: which was curing by *contrarieties*, as they termed it.

Having thus slightly touched upon the kinds of *bitumen*, with the use antiquity has made of them, let us bring things nearer home, and speak of a kind of *ampelites* or black *bitumen*, highly loaded with sulphur and salt, which we have at hand; as it is to be found in plenty on some parts of the coast of *Sussex*. Upon considering the use of the *lanæ sulphuratæ*, which Dr. WILMOT communicated to me in an extract from SCRIBONIUS LARGUS^k, I was of opinion that *bitumen* and sulphur would be a more efficacious remedy than sulphur alone. Therefore I ordered some of this *ampelites* to be rubbed very fine, and then strewed upon coals, and the hot steams received into a funnel, and applied hot to the tumours of the glands, after they had been fomented with sea water.

^k Vid. Epist. ad D. LEWIS de tab. gland.

But in some of these cases I thought flannel heated and teized the skin too much : in order therefore to remedy this inconvenience, I directed some soft picked cotton to be lightly quilted on linen, and tucked round the swelling, and to receive the steams by a funnel on the part ; and this I found to answer much better, and contribute towards the dissipation of large tumours of the glands, and to confirm the tone of the weak parts. But this should be continued no longer than may be necessary to disperse the hardness : after which cold bathing is the best way to finish the cure.

This *ampelites* or *pharmacitis*, when it lies exposed to the air, is apt to scale, and from the salts it has in it will moulder away by the winter frosts and rains into a black gritty powder ; which in some places covers the sand : but this is not so good as the hard stone, when first broken and powdered ; nor has it a smell so bituminous and sulphurous, when burnt upon the coals.

I have inserted this chapter, as I think the *lanæ sulphuratæ* of the antients are too much neglected, and that they are capable of great improvements. In strumous fingers, where the nodes do not dissipate so well as I could wish,

wish, I direct the parts to be held over the fumes; and the *ampelites* thus mixed will burn a great while, and emit a strong sulphureous and bituminous smell. I commonly mix the following powder for the fumigation,

℞ *Lap. pharmacit. ℥iss. Nitri purissimi ℥iss m.*

I sometimes add a little sulphur to this: but if much be added to it, it will make it burn off too fast.

With this the parts, and cotton bandage should be well fumigated, and then tucked warm round the swelling, after the part has been fomented with sea water. ¹ *Jam vero pura vellera, aut per se imposita, cæcis doloribus, aut recepto sulphure.*

As strumous diseases have hitherto been untractable by physicians and surgeons, all these helps are little enough to encounter with some of the most obstinate cases. But we will now proceed in our enquiries to the *pumex*, or pumice stone: in the mean time give me leave to say, I should be inexcusable in giving you this trouble, if I did not flatter myself that you will find somewhat useful to mankind struck out in these short essays.

¹ Plin. *Nat. Hist.* lib. xxix. cap. 2.

Of the PUMEX.

ANOTHER remedy I have taken notice of in my essay on the use of sea-water, is the PUMEX or PUMICE stone, as one of those medicines which the antients used in diseases of the glands. This is supposed by authors to be a kind of earth calcined by subterraneous fires, and then by volcano's hurled out into the sea. There are many sorts; all of which are porous, spongy, and have a salt taste.

The uses the antients made of this were various. It is so great an absorbent, and corrects the acid fumes of wine so much, that they imagined it would extinguish drunkenness, and that it was of so refrigerating a nature, (according to their way of speaking) that even must would not ferment, if the *pumice stone* was added to it. However this observation of theirs shews it to be a great corrector of acidities in the *primæ viæ*. PLINY calls them *erosa saxa*. The most porous and the dryest were esteemed the best, from whence PLAUTUS says; *pumex non æque est aridus*. And those also that were easily levigated, and had not sand or gravel mixed with them, were most esteemed. For
they

they were very exact in preparing them, and rubbing them fine ; because they were used as remedies for the eyes : the roughness of whose parts, by the friction of the lid upon them, will polish off foulnesses from the *cornea* ; as the rubbing it by artificers on other bodies will polish them. But it is necessary, these parts of the *pumex* should undergo proper levigation before they are used.

The manner in which the antients used to prepare them was, by burning or heating them red hot in a clear fire, for three times, and extinguishing them as often in white wine, then washing, drying, and levigating them for use.

I have cleansed some foul ulcers of the *cornea* with this remedy, when I could not manage them any other way. It wonderfully sweetens and corrects the acrimony of humours, and, as I said before, cleanses off *sordes* from the coats of the eye. PLINY says also, that they were used as *malagmata*, in ulcers of the head, *verendorumque ulceribus* ; and that they were excellent dentifrices ; lightly cleansed ulcers ; and assisted the surgeon in cicatrization.

From these hints I therefore gave it internally ; and am of opinion, it not only edulcorates

corates and corrects the juices in the *primæ viæ*; but gently shaves off the slime and impurities, which daub over the mouths of the internal glands and the lacteals, safer, if not better, than remedies which have a more caustic quality. For I have found this medicine of great benefit, when ponderous ones would not succeed; I mean such as *mercury*, *antimony*, *cinnabar*, &c. And in long fluxes of the belly, this is doubtless a good remedy: HERMAN, speaking of the *pumex*, says; ^m *Nonnulli etiam hunc lapidem præparatum, ad nimios alvi fluxus sistendos, propinant.* THEOPHRASTUS says, this drug will appease disorders of the stomach, even when hellebore has been taken. ⁿ *Eudemus Chius post septimam veratri potionem vomitum cohibuit, primum sumto pumice, acri aceto consperso; deinde eodem pumice mero diluto et macerato.*

Amongst the forms I have tried for the eyes, the following makes a good *collyrium*:

℞ *Lap. pumic. trinâ ustione tost. ac toties vino albo restinct. Lap. calaminar. lot. ana p. æ. opt. lævigat. Sacch. cand. alba p. i.*

^m Vid. P. Herman. Lapis Materiæ Medicæ, Lydius, p. 61.

ⁿ Theophrast. lib. ix. cap. 18.

Terantur

*Terantur simul in mortario plumbeo, donec
livescant ; tum in vitro clauso serva.*

Where there are any foulnesses left upon the *cornea*, after the eye has undergone long fluxions, this powder in spring-water, and sometimes by itself, will answer the end of deterging and healing : but, as I observed before, the powders should be levigated very fine. Thus we find every enquiry into the remedies of the antients affords us some new light ; and the physician has at least a chance to improve what their observations brought into practice.

Of the CADMIA.

ANOTHER remedy of the antients I have mentioned is the *Cadmia*, or the *lapis ærarius*, as the moderns sometimes call it, which we use under the name of *lapis calaminaris*, and is the grey *calamine*, which is found in England, as well as abroad, near mines of copper. LEMERY says, there is a district near the duchy of Limbourg, which abounds so much with the *lapis ærarius* or *calaminaris*, that it is called by the name of *calmine* or *calamine*. This contains a good deal of copper ; and after washing and calcining, is used
by

by the founderies of copper, in making the yellow brass or the *aurichalcum*. The same author says, that we owe the discovery of the *aurichalcum* to the alchemists, who hit upon it in searching for the philosopher's stone; but this was so well known to the antients, that ⁿCALLIMACHUS, in his *lavacrum Palladis*, takes notice of the *orichalcum* in the following lines;

*Nam nec in Ida olim, judice sub Phrygio,
Se vel Orichalco magna hæc Dea, vel Simoëntis
Spectavit quanquam vortice perspicuo.*

And VIRGIL,

*Ipse dehinc auro squalentem, alboque Orichalco
Circumdat lorica humeris.*

FESTUS calls this the *Cadmean earth*; *Cadmea terra, quæ in æs conjicitur, ut fiat orichalcum*;

° CONSTANTINUS AFRICANUS enumerates three kinds of *Cadmia*; but seems to me to have confounded the *pumex* with them: the second, he says, is found in caverns along the Indian sea, and is green, rough, and perforated.

I make no doubt but the *metallurgic art* was in great perfection amongst the antients;

ⁿ Callimach. Hymn. v. l. 18. Interpret. Politiano.

° De gradibus simpl.

and suffered, as painting, sculpture, and other arts did, in those times when the barbarous nations over-run the learned and civilized part of the world. PLINY says the invention of brass was owing to the Cyprians : *in Cypro, ubi prima fuit æris inventio*. Some authors report, this art was carried to great perfection amongst the Persians : ZOSIMUS says they had invented an admirable kind of yellow brass by a mixture of *tutia*, which tutty was made of *cadmia* or *lapis calaminaris* : And it is said, the brazen gates of the temple of *Sancta Sophia* at Constantinople were made of this kind of brass. This composition possibly came near the colour of our modern *Pinchbeck* : for ARISTOTLE says, there were vessels found amongst the *supellectilia* of DARIUS (*inter Darii supellectilem*,) which he calls *batiacas*, that unless the smell had discovered them to have been brass, could not have been known by their colour from true gold : And this composition, which they called *orichalcum*, was brought to such perfection in AUGUSTUS CÆSAR's time, that they adorned their instruments of music with it.

^p *Tibia non, ut nunc, orichalco vineta.*

^p HORAT. *De Art. Poetic.* 202.

I mention

I mention this to shew to what height the antients had carried their metallurgic art, (who doubtless knew how to make the yellow *orichalcum*) and excite us to improve upon their observation. This spirit of improvement and industry has been wanted both in medicine and chemistry; infomuch that even in my time persons have rented the bloomeries or dross of furnaces, which had been thrown away as of no account by the iron-masters of the last age, and got estates by working them over again thro' their furnaces.

It has been the same thing with the *lapis calaminaris*: which has been neglected to be inquired into, and used only in external forms; whereas it is a most admirable remedy given internally. Indeed Mr. BOYLE has given a prescription of it: but how it has been neglected, I know not. He says, *he wonders, that the virtues of the lapis calaminaris are so little known to chemists and physicians*: and in another place mentions a person, who gained a great reputation in town by curing fluxes (some of which were dysenterical) with the *lapis calaminaris* only. For my own part I generally give it alone:

N 2

but

but Mr. BOYLE has added chalk in his prescription ; after the following manner :

Rx. Lap. calaminar. opt. lævigat. ʒij. Cretæ albæ ꝑp. ʒj. Misceantur diligentissimè, et sumantur in cochleari uno vel altero lactis recentis, bis, vel, si res postulet, ter in die. — Contra diarrhæam, et præcipuè si tormina adsint.

Physicians will find this, well washed and levigated, to be an admirable remedy in some kinds of fluxes of the belly. And I find a letter of thanks from a gentleman in Ireland to my grandfather, who had communicated this secret to him, in which he says, it did such services to persons labouring at that time with the flux of the country, that they called it, for its virtues, the *golden powder*. Pere PAPIN says, the Indians set a great value upon *talk* and *brass*: which, they say, consume all viscous humours, and remove the most stubborn obstructions.

I have found great success from the *lapis calaminaris*, in persons who had weak bowels. It is a great corrector of acidities, heals excoriations, and by taking off the irritation, quiets like an opiate ; and the æruginous part of it corrugates the fibres, and binds. But
the

the great difficulty is to ascertain the dose; for the same quantity, if it be loaded more with æruginous particles than the former, will be apt to vomit. Therefore I usually begin with small doses, and increase them, as I find the *lapis calaminaris* is more or less loaded with æruginous particles. In adults, I never begin with more than five or ten grains, increasing the dose daily, as I find the stomach bears it, in milk warm from the cow, night and morning. And this I have known cure long and desperate fluxes of the belly, when the parts have been left weak; after the first days of inflammation were past, and the fluxion had been taken off by bleeding and the common methods. You will observe, there is an advantage in beginning with so small a dose, as the remedy is given as a styptic; all which will vomit or purge, if given in too large a quantity.

Nor did my inquiry into this drug stop here; but trying how I could improve its external uses, I have hit upon a way of managing it, which, if it will not cure an ulcerated cancer, and cancerous ulcerations of the mouth, will at least palliate them, beyond all things yet known: this I have often experienced.

The *ceratum de lapide calaminari* is the best desiccative the surgeons now have ; and the *collyrium de lapide calamin. et pumice tost.* is the best *collyrium* I have met with.

Of the SPODIUM.

THE next remedy to be considered is the *spodium* of the antients : which was a sort of *cadmia*, endowed with æruginous particles. The *spodium Græcorum* was the *tutia* of the Arabians : of which they seem to have had two sorts, the one metalline, the other prepared from animals, &c.

AVICENNA, who seems to have taken all he has written upon this subject out of the books of the Grecians, or from the traditions of his own times, says, that the *carmanian tutia* was made out of animals found upon the shore, thrown up by the sea, or the burnt root of *alcanna*. Hence possibly came the opinion of the *tutia's* being found on the sea shores. This hint however, and GALEN's saying, they made a *spodium* out of the burnt horns of animals and ivory, possibly gave rise to all the factitious *spodium* ; for the *spodium* of the moderns is made of burnt ivory.

But

But the metalline *spodium*, or the *spodium Græcorum*, was formed of a metalline sweat, or fume, which arose from brass and the *lapis ærarius*, and gathered like light soot about the top of the furnaces, in founderies of brass. SERAPIO, mentioning *tutia*, says, it is produced from the brass furnaces. *Et ex ea est, quæ fit in fornacibus, in quibus citrinatur æs, et colligitur, et reponitur, sicut climia.* And in another place he says — *Elevatur ergo ex climiâ fumus, et adhæret parietibus.* And this description has the concurrence of other authors. Therefore we may esteem the *tutia* of the shops, which is brought to us from Germany, Sweden, and other places, where they have brass founderies, to be a kind of flower of a particular kind, which arises from the furnaces, impregnated with æruginous or metallic particles, and hardens afterwards, like soot, or flies off in *scoriæ* from the brass in melting.

The antients used this in diseases of the eyes; where the mixture of the salt *calx* and the *ærugo* formed a medicine not unlike in quality to the *aqua sapphirina* of Dr. BATE's, where the *aqua calcis*, and *sal ammoniac.* are permitted to stand in a copper, till the colour, becomes a fine blue. So that this modern

remedy seems to have been an improvement of that great man's, upon his analysing the *tutia*. The antients used it also as a desiccative, or drying remedy for sores: but here their inquiry seems to end; for I do not find, they used either the *lapis ærarius*, or the *tutia*, internally.

But if we consider the experiments of HOMBERG, in the *acta regia Paris*. and other chemical writers, we shall find reason enough to expect greater things from all the compositions of brass. For if you give it in such a dose that it will not vomit, it acts by its sulphur, and is one of the best aperients; for it braces up and strengthens the vessels like steel.

A small quantity of brass will vomit; and therefore care is to be taken in beginning with small doses. But these *scoriæ* or footy particles, which fly off from the brass in melting, are not so highly loaded with the metal and salts, as to excoriate even the eye or give pain; therefore they may be given in any quantity, short of proving emetics. BOERHAAVE says, a solution of copper, in *sal vol. ol.* prepared with *sal ammoniac. et alcohol*, excels all other diuretic and hydropic remedies; and this I have seen some tryal of with success.

cess. Of this kind is the *spiritus veneris antiepilepticus* HELVETII, so much praised in epilepsies from *pituita*, in atrophies of children, and in obstructions of the *menfes*.

The reason which the chemists give for copper's being called Venus, is the great virtue attributed to it, in curing diseases of the parts of generation, and promoting venery. What foundation there is for that opinion, I will not pretend to say; but I know that the *spodium* is an excellent remedy in gleans, and the *fluor albus*, as I have given it prescribed in the case *de fluore albo*. But care must be taken to give it in proportion to the æruginous particles that it contains, for they should be kept so low, as to prevent the remedy from proving a strong emetic; although if it sometimes has that effect in a moderate degree, it will nevertheless do good in those cases. It partakes of the nature of *lapis calaminaris*, but is less styptic. I sometimes direct it to be prepared, by making it red hot in a crucible, and then extinguishing it in water; repeating this operation three times at least; afterwards powdering it in a marble mortar, and levigating it on marble, or a porphyry.

Of TEPID BATHING.

BEFORE I mention any cases on TEPID BATHING, I shall beg leave to take notice of the *hermodactyl*; as it is a plant I frequently use in fluxions on the glands, and generally join with a course of tepid bathing. But as there have been disputes amongst critics, and botanists concerning the wholesome kind, it may not be improper to inquire what has been said on that subject.

The *colchicum* of DIOSCORIDES has been esteemed a kind of *hermodactyl*; but as this is a noxious plant, and produces strangulations, it will be highly necessary to distinguish it from the *hermodactyl* of the shops. GERARD thinks the white meadow saffron, which he found about Sheepton Mallet, to be the *hermodactyl* of the shops, and says, it purges, and is used in the gout.

^a RENODEUS reckons up three sorts of the *ephemerum* or *hermodactyl*. *Est ergo ephemerum quoddam lethale, ut Colchicum; aliud non strangulatorium, ut nostras: (scilicet bulbus agrestis, sive crocus agrestis) et tertium purgatorium, idque tutum ut Syriacum, quod in pharmacopo-*

^a Vid. RENOD. *De Mat. Medic.* cap. 19.

liis hermodactyli nomen habet. But VALERIUS CORDUS seems to have given us the best description of this plant. ^r VALERIUS CORDUS *Colchicum quoddam reperiri scribit superioribus simile, sed flore candido, et radicis bulbo (cum resiccatus est) inalbicante; interiusque candidissimo, cujus contusi pulvisculus speciem exhibet farinæ triticeæ, sapore suavi ac dulci.* Hoc in GERMANIA, inquit, non nascitur, sed aliunde infertur: et verisimile est, albi istius et peregrini Colchici radices esse, quæ in officinis hermodactyli nomine veneunt; nihilque aliud hermodactylum istum esse, quam albæ candidæque radicis Colchicum. This corresponds with the accounts we have of the chief part of this drug's being brought us from Syria and Egypt; — as from Grand Cairo: where PROSPER ALPINUS observes, the roots are in great esteem amongst those persons who frequent the baths, and are skilled in what he calls the *ars pinguefaciendi*. And it is not unlikely, that some authors upon this account have esteemed this root a kind of *satyrion*; most of which are reckoned to be restoratives.

SALMASIUS says, the Arabians attributed to the *hermodactyl*, the faculty of plumping

^r Vid. DODONÆI *Hist. Stirp.* p. 461.

up the body; and adds, —[†] *mulieres eâ uti ad corpus augendum, quod vulgò dicimus EMBONPOINT*. Where he says also, that AVICEN attributed the same virtue to the *berhem Arabum*; and that the *bermodactyl* was given in diseases of the joints. — *Articulorum et coxendicum doloribus medendis hæc etiam idonea*. And indeed it maintains this character to our time; being a considerable part of the *pulvis arthriticus* TURNERI, and entering into the composition of many other medicinal receipts.

From what has been said it will appear, that the drug, we have been speaking of, is the Syrian or Egyptian *bermodactyl*; which is not noxious, but gently opens the belly: and is used by the Egyptian women under their course of tepid bathing; when by keeping the bowels cleansed of crudities, by taking medicated broths, and restoratives in the tepid bath, they render the body plump and smooth.

In some dry habits, that did not bear cold sea bathing, especially where the skin was covered with foul scorbutic, or leprous eruptions, and could not bear the touch of sea water, without being irritated too much, I

[†] SALMAS. de Hom. c. 116.

have

have imitated the Egyptian manner of bathing, and kept the body open by *hermodactyls* and sea water, with very good success.

I could name several instances in both sexes, where they had been teized and worn out by their complaints, that altho' they were lean, shriveled, and of a bad complexion, yet went away cured of their cutaneous disorders by these means ; and their habits were rendered plump and smooth, almost like a renewing of youth.

Having therefore described the Syrian *hermodactyl*, and the uses made of it by the *balneatores*, or those to whose care the Egyptian ladies of best fashion were committed, I shall relate to you some instances, where tepid bathing has been of great service.

I have in another place observed, that it is necessary for the physician to consider well the state of the glands, before he enters upon their cure ; and I again must recommend the careful observance of it ; because I am sensible, many of his patients, from the inconvenience of being long absent from their business, or kept from the ordinary pursuit of their pleasures, will be apt to hurry him into a concession of a course of bathing, before the body is altered, and sufficiently prepared
by

by drinking the sea water, or by a previous course of taking other remedies ; and this is a compliance, that ends always to the patient's detriment : an instance of which I saw in the following case.

A gentleman, aged thirty six, was sent me as a patient from an eminent physician in London. He had a large humid spreading *herpes* upon the arm, as also scorbutic eruptions in spots all over the body. When he got down to the sea, he entered upon sea bathing immediately, and drank the sea water ; but upon going into the sea, the eruptions were not only much teized, but became more general, and the itching intolerable ; his clothes sticking to the parts almost every where.

Under these circumstances I was sent for to him, when he produced his physician's letter to me ; in which he had wisely directed previous evacuations : but that advice was either not known, or not followed by the patient. Upon observing the edges of the eruptions to lye high on the skin, and that they were very red, and the fluxion great, with large incrustations on many parts ; I advised the laying aside sea bathing, and even the water for some time ; instead of which he took as follows :

Mitt.

Mitt. Sang. ℥xvj.

℞ *Hermodactyl. pulv. ʒj. Æthiop. vegetab.*
ʒj. Lac. sulph. gr. x. Syr. rosar. solut. q.
ſ. m. ſ. bol. mane et nocte ſumend. ſuperbi-
bend. hauſt. ſeri medicati.

In the mean time, I thought it proper to avoid *mercury*, and all ponderous remedies; which in theſe caſes, if they have not a venereal cauſe, do no good. By theſe means he was kept open, and the inflammatory ſtate of the eruptions much abated; having joined to this method the uſe of tepid bathing.

Divers forms of the *balnea dulcia* might be contrived by phyſicians with great advantage, as particular caſes require; which I have been obliged to alter, from the ſlimy *fucus*, down to bran and mallows. In this caſe I directed a large bag, filled with pollard or bran, to be put into the bathing tub, and plenty of mallow leaves picked and thrown on that; next boiling water to be poured upon them, and to ſtand till it was as warm as milk from the cow; and then the patient to enter into it, and waſh all the ſalts of the ſkin, and the impurities of the eruptions clean, with the ſcalded mallow leaves. By theſe means the
cruſts

crusts of the eruptions were kept so clean, that no impurities lodged, to fret and excoriate the parts farther; and where the cutaneous glands gleeted too much, I used the *ung. de pice liquidâ*, or the following wash:

R. *Pic. liquid.* ℥viiij. *Aq. marin.* ℔ij. m.
stent simul per horas 24; tum cola.

But finding the eruptions look cool, and the pulse quiet, I then let him return to the use of sea water; by which the fluxion was soon abated: and when the sores were all healing, he returned to sea bathing; which strengthened the parts: and he has been very well, as far as I can learn, ever since. In this case, there was a desquamation of the whole skin, like the *exuviae* of a serpent.

The second history is almost similar to the first, but as it was attended with great emaciation, I will insert it.

A woman, upon the ceasing of the *menses*; had a return of a humid *lepra*, which had left her from the time of puberty, or at the first breaking down of the *menses*, till now. This was one of the most general cases I ever saw of the kind, and had been increased by imprudent and untimely sea bathing; the salt water having irritated the sore parts. The
 2 itching

itching in this case was so intolerable, that it had almost worn out the patient, for want of rest; and she was hardly able to wear any clothes.

Under these circumstances I advised bleeding once or twice, and that she would take the *vegetable æthiops*, and *lac sulphur.* with a medicated whey, night and morning; and enter into the tepid bath, as before described; with a third part of whey or buttermilk added to the bath. By these means the irritation was taken off; and to recruit the patient, I ordered warm chicken or mutton broth to be drank night and morning, during the time she was in the bath; which nourished her: and, as she was more at ease, she slept better, and grew plump. And when I found the quickness of her pulse, which attended her all the time the case was in that irritated state, to be abated, and grown quiet, I then ventured upon sea water again, which soon took off the fluxion: and the cure was finished by sea bathing.

This case remained two years without a relapse; but this year she shewed me a return of it again, in the bending of the arm; tho' the appearance was very mild: which shews, when glands have been so much diseased, how

O

easily

easily they are brought to suffer again, when any new plenitude arises in the habit.

The eastern people medicate their broths; but, in general, I think that unnecessary. I must own, I took this hint of giving restoratives, during the time of my patient's being in the bath, from PROSPER ALPINUS; who says, he hath seen many Egyptian women grow fat, by this method of tepid bathing. *Ex quo auxilii genere plures vidi emaciatas mulieres pingues evasisse; præsertimque parato in pingui gallinarum jure.* And the same author says, he was informed by an Egyptian woman, who professed the *ars pinguefaciendi*, that the poorer people used *fenugreek* tea for the same purpose. And we find, our doctors for cattle give *fenugreek* to their horses with good success, when they don't thrive.

And what would induce us to this practice, of giving restoratives to emaciated persons during the time of their being relaxed in the tepid bath, is, that children and women, from whose laxity of fibres the adipose glands are less compressed, are more inclined to be fat than men, or those whose fibres are more firm and rigid.

I shall venture to add one case more, in which

which tepid bathing was of great service, joined to the use of sea water.

A man aged twenty one came to me, with such an ouzing from the cutaneous glands, that it wet through his breeches, as he sat on the chair. The fluxion was so great, that I conceived hopes of restraining it only by making revulsion with *turpeth mineral* vomits, and by giving *calomel*. &c. with his sea water : but this rough method would not do by any means ; it irritated so much, that he grew infinitely worse. The eruptions became now almost general ; he could hardly bear any clothes on ; his hands and feet grew incrust-ed, as did his ears ; and he was one of the most afflicted patients I ever saw.

Under these circumstances, I ordered him to lay aside the use of mercurials, and to sit in the bathing tub, of bran, mallows, milk and water, as before described, and to wash out the salts of the skin with the mallow leaves, to continue the use of sea water, the *vegetable æthiops*, *hermodactyls*, and *lac sulphur*. and this method succeeded to my wish ; the incrustations came off from his hands and feet ; and the whole body healed.

But a very remarkable circumstance in this case was, that whilst the glands of the skin

discharged, or ouzed so much, one quart of sea water would not purge the patient; whereas afterwards one pint answered very well. This shews that the intestinal glands, when provoked to do their duty, will supply in a great measure the deficiency of secretions by the skin.

Having given you some observations upon the use of *hermodactyls*, and *tepid bathing*; we will now proceed to the consideration of *cold sea bathing*; which is one of our principal objects.

Of SEA BATHING.

SEA BATHING is another remedy, which may be traced up to great antiquity. HOMER makes DIOMEDE and ULYSSES use sea bathing to cleanse off their sweat, and strengthen their nerves, after they had brought the spoils of Dolon on shipboard, to dedicate them to Minerva. The Greeks had so general an esteem for it, that ARISTOPHANES, in his comic scene, of leading PLUTUS to the temple of ÆSCULAPIUS, to cure him of his blindness, has chosen sea bathing, to purify him:

Igitur

*Igitur simulatque pervenimus ad hunc Deum
(Æsculapium)*

*Ducentes PLUTUM (eo tempore miserrimum,
Nunc autem, si quis alius felicem et beatum)
Primo omnium nos ad mare eum perduximus,
Et aquis marinis abluimus.*

And baron SPANHEIM, in his note upon this passage, has judiciously observed, that ARISTIDES, in his fourth discourse, has shewed, ÆSCULAPIUS himself used particularly to prescribe these kinds of ablutions; where he quotes the following passage out of HIPPOCRATES: ^a *Pruriginosis, et qui acribus humoribus vellicantur lotiones in mari prodesse.* The Romans also held bathing generally in great estimation; and SÆTONIUS says, sea bathing was introduced at Rome by NERO; the magnificence of whose baths far exceeded all things of that kind, which had been constructed even by the Grecians.

^b *Quid NERONE pejus?*

Quid THERMIS melius NERONIANIS?

Many extracts might be made also out of the Egyptian and Jewish antiquities, to shew

^a HIPPOCRAT. *de humid. usu* cap. 7.

^b MARTIAL. lib. vii. Epig. 33.

the early use, which different nations of the world made of this purifying remedy : but as this little essay is intended to shew, in what cases it may be useful, or hurtful, I have chose to confine myself to the observations I have made upon sea bathing myself, and what has been mentioned by others.

I distinguish sea bathing into general, and topical ; by the former I mean, when the whole body is immersed ; by the latter, when sea water is applied to some particular part of the body only. We will begin with the consideration of the first : and that naturally suggests the situation of the place ; which, I think, should be clean and neat, at some distance from the opening of a river ; that the water may be as highly loaded with sea salt, and the other riches of the ocean, as possible, and not weakened by the mixing of fresh water with its waves. In the next place, one would choose the shore to be sandy and flat ; for the conveniency of going into the sea in a bathing chariot. And lastly, that the sea shore should be bounded by lively cliffs, and downs ; to add to the chearfulness of the place, and give the person that has bathed an opportunity of mounting on horseback dry and clean ; to pursue such exercises, as may be
advised

advised by his physician, after he comes out of the bath.

The situation of the place being premised ; as to what regards the patient, and his entering upon sea bathing, if he be an invalid, he should not attempt it without advising with some skilful person ; as this remedy, like others, may be misapplied. And as all cold bathing acts upon the body according to the coldness or temperature of the bath, so the physician should direct, not only at what period of his disease it is proper, but how long the patient is to remain in the bath ; what is to be done at his coming out ; and at what time of the day he should enter it. By which means the physician may direct different temperatures of the bath, according to the constitution of his patient. For as the sea is never equally cold with cold spring bathing, so in proportion as the sun grows higher, it becomes still warmer ; and you may have the benefit of the temperate bath, with the addition of the salts of the sea.

The advantages, which arise from this management, will be very great: for the blood being not so violently forced upon the *viscera* and brain, as in more intense cold bathing, the tender *viscera* will not be so li-

able to be injured, by too great an afflux. But the *viscera* indeed, if they are much vitiated, will not bear cold bathing at all: as I have already observed in my former treatise; where I never advised bathing, till the obstructions are partly removed. But if the *viscera* and intestinal glands are less loaded, less care is necessary upon that account; because while the obstructions are recent, and small, cold sea bathing will do good. For from the increased quantity of the blood, which is sent to the brain and *viscera*, there is a greater separation of animal spirits; and the glandular secretions by the liver, kidneys, and all the internal glands, are augmented; by which means mesenteric obstructions, amongst the rest, will be removed. And as these ends are most effectually brought about by such means as compress the fibres, and increase the weight of the water, so the salt in sea water, adding to its weight, makes it more useful in many diseases, than spring water: besides the advantage it receives from its soapyness; which deterges the skin, scours the pores of their impurities, and renders them more fit to let pass the humours, which used to go off by transpiration.

But, as the contractions of the *fibrillæ* are sudden, and continued throughout the machine; so the pressure should be equal, and all the parts sustain it equally, at the same time. Therefore it will be incumbent on the physician to direct his patient to go all over at once, and enter the bath empty; to avoid JUVENAL's censure:

— *Crudum pavonem in balnea portet.*

By these means head-aches are prevented, and the *viscera* left more at liberty. Farther it is observed, that altho' cold water contracts at first, yet a patient may stay in the water till the muscles are weakened and tired by that contraction; and instead of that agility he finds on coming out, if he stays a short time in the cold bath, the fibres are soaked, and weakened, and he has a lassitude, which he did not feel, before he bathed.

But I must not finish this part, which relates to cold bathing, before I have related two cases, cured by cold bathing, and drinking the sea water; to shew, how the nerves are strengthened thereby. One is a case of Dr. SMYTH's of Bloxham; which confirms your's, of the cure of a *chorea Sti. Viti* by the same remedy. The Doctor, in a letter to
me,

me, dated June 4, 1752. says, *I have had a remarkable instance of a chorea Sti. Viti perfectly cured by the use of sea water internally, and the cold bath afterwards. This case for three weeks or a month had resisted all other methods ; till by joining the use of sea water with the medicines, which had been taken before without any effect, I soon compleated the cure. This hint I took from your treatise De tabe glandulari.* This shews, how useful it is for gentlemen of the profession to communicate their experience to one another ; as the cure of this unhappy person was owing to your excellent history of the youth cured of the same disease, and by the same methods, which are mentioned in the epistle, you did me the honour to publish with my work.

Another case, which was under my own care, follows.

I was called to a young lady, who had a shew of the menses at twelve years old ; but they did not continue to return periodically. Upon their not appearing, purging emmenagogues, steel, and the like methods had been used : but these were laid aside, when I visited her ; because I thought the shew of the menses untimely, and the parts not rendered fit for menstruation. She had a nervous paroxysm
came

came on every day, to a minute. When I saw her, she was diverting herself with her friends at a christmas festival ; and I asked how I came to be sent for to a person so well : to which I was answered ; two minutes before two o'clock, I should see the occasion. The gentleman shewed me his watch at that time, when she was playing at cards, and knew nothing of my observing her.

It began exactly at the time, with a yawning, which increased momentarily, drawing in a vast quantity of air into the lungs, and sending it out at one gust ; till the repetitions of yawning were so quick, that there was no pause : then began a convulsive motion of the muscles of the thorax, and those concerned in inspiration and expiration ; the *scapulæ* and shoulders began to be lifted up and down, under the greatest difficulties ; as in some high fits of asthmatics ; and the air pumped out of the lungs with a strange noise, that resembled the barking of a dog. This convulsion continued till the muscles were tired ; and then the pumping out of air from the lungs gradually declined into larger distances betwixt the barkings. She made a prodigious quantity of pale nervous water ;
and

and the fit went off, leaving her very sore and weary, till the next day.

Under these circumstances, seeing the patient much weakened, and the use of one leg much impaired, and a hanging down of one lip, with flowing out of the spittle; I advised her being moved to the sea; and by the use of nervous medicines, and cold sea bathing, this case was soon perfectly cured; tho' it had resisted all other measures. As she grew stronger, menstruation, which is the business of nature, was brought about in its proper time.

This case not only shews the great efficacy of this remedy; but of what consequence it is, to observe nature's time in directing the secretions.

Having given you those observations and cases, which I proposed concerning cold sea bathing, applied generally, I must now beg the indulgence of your attention, whilst I relate to you the advantages, which in many cases *topical* or *partial bathing* has, in preference to *general* sea bathing. And I will endeavour to illustrate this matter in the following cases.

A woman aged thirty was brought to me with obstructed menses, her nostrils stuffed with
with

with strumous *ozenæ*, her upper lip very thick; and her eyes had sustained so long a fluxion, that an ulcer on the *cornea* had taken away the sight of one eye, and both lids were turned out, and so loaded with the fluxion, that she was what they commonly call blear-eyed. Under these circumstances I ordered all her mercurial remedies to be laid aside, which she was taking before; directed some blood to be taken away; and sent her to bathe in the sea, and drink the sea water. I saw her about a fortnight after, and found the fluxion not in the least abated. I then advised her to leave off the use of the general bath for a while, and use it *topically* only; that is, to have her head shaved, and to wash her head, neck, and temples, as well as her eyes, with fresh *alga*-dipt in a bucket of sea water, very often every morning; and to clean them with a cloth or sponge dipt in sea water afterwards. Then I ordered her to dress her head cool, and drink the sea water; enough to purge her three or four times every day. During this time she joined proper absorbents with her sea water, and used a *collyrium* with the levigated *pumex asat.* &c. to help rub off the *albugo* in the worst eye; and this was attended with wonderful success.

After

After the operation of the water was over, she washed all the parts again once or twice in the day; and by this method got rid of the fluxion entirely, and the *albugo* was so far cured, as not to be unseemly. But there remains a pit in the *cornea* of the worst eye, that obstructs the sight of it; the other is perfectly well. She continued this course for three months, recruited her flesh, and as her habit grew plumper, and approached nearer to the *embonpoint*, her menses returned, and the cure was finished by general sea bathing. This poor woman had been formerly a servant of mine, the recovery of whose health I so much despaired of, that I had her taught to knit fishing nets to prevent her from coming to want; in which art under this blind condition she had learnt to be very skilful.

Upon my transcribing this letter to you, I have a recent instance of the great usefulness of this method; for the young lady you lately sent me is perfectly recovered of her eyes; tho' you well know, her case had eluded all other care before she came to you; and what had given her physicians trouble enough for two or three years, has been cured in six weeks.

Another

Another instance, out of many of the same kind, is of a girl about thirteen, sent to me with strumous swellings in her nose and lip, a very foul ulcer upon the wrist, with the joint much thickened, and a puffy or elastic swelling, that arose again from the pressure of the fingers. She had the same kind of ulcer upon the internal ankle, the knee swelled, and one tumour of the same kind upon the side of the hip. When she was brought to me, the ulcers were filled with red precipitate, to keep down the *fungus*, and dressed with *ung. basilic. flavum*.

I directed these dressings to be laid aside, and the sores to be strewn with an antistrumous medicine, which was not corrosive; compresses to be wet in sea water, and laid over the sores; being gently rolled on with what the surgeons call a retentive bandage. Which bandage also I caused to be wet four or five times a day with cold sea water, pressed out of a sponge, and the dressings to be taken off and the parts washed with sea water only once a day. By these means the tumours were wonderfully dispersed; no new *fungus* arose in the sores, and they healed. She then entered upon sea bathing to strengthen her habit, continued the use of sea water inter-

internally, and went away from me cured of this great and desperate illness.

I must observe in this place, that as the fluids press equally and *undequaque*, when there is any breach of their tubes, as in running sores, they will run off by those ways where they meet with least resistance. As I have an instance now before me of a woman with strumous ulcers upon her wrist, who asks me this question; *Must I continue my sea bathing? Because when I bathe, I observe my sores are forced open, and run a-fresh; when I abstain from bathing and drink the sea water only, they heal.* As this is the observation of my patient, I thought fit to insert it in her words. Where there is no matter, therefore, and the parts are left only weak, topical or partial bathing is preferable to bathing the body all over in the sea. The following case is an instance of this.

A child was sent me from London with strumous ulcers over both feet, one hand, and upon one leg, with an enlargement of the *tibia*; a large ulcer upon the cubit, with the joint enlarged, rigid, and that part of the *humerus*, joining to form the cubit, swelled into a hard node, like the beginning of a *spina ventosa*. I was much discouraged at this case,

case, as all these apostemations had happened before the child came to me; however I had one thing to found some hopes on: there was no cough; no mesenteric disorders; and of consequence more probability that the blood might be purged of the *pus* it had absorbed. I therefore forbade plaisters, and unctuous dressings to the sores, and tried to force them open as much as I could with general sea bathing, which I had found from experience to have that effect. After the first or second immersion, the attendants told me, the sores run worse than ever. I then directed an antistrumous powder to be taken night and morning, my tincture of *millepedes* with Rhenish before dinner; to drink the sea water every day, when she came out of the sea; and to go on with her sea bathing. The sores discharged largely: by which and the use of the cold bath her hectic lessened, and I had good reason to hope, all was well within, and the blood cleansed of its impurities.

I visited this patient once a week for about three months, in which time I found the nodes sunk, and daily lessened; but the sores discharged much after bathing, and a hardness came upon the bone of the skull, near

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the

the orbit of the eye ; which extended itself all over the *os squamosum* to the ear, and the ear grew loaded with eruptions, that run very much. This alarmed me greatly ; but as the other sores were open, I ordered the head to be shaved and washed with sponges dipt in sea water, two or three times a day ; and suspended general sea bathing, till I had fortified this part which was newly attacked, trusting in the mean time to daily purging with sea water, and the common discharges of the other sores only. This had it wished-for effect : for the application of sea water to the head, forehead, temples, etc. cooled the parts and disscussed the tumour ; the hardness sunk again from the bone, the discharge by the ear dried off, and the external sores lessened every day. I directed no more sea bathing, but as her hectic was perfectly gone, I suffered the sores to dry up ; which they did in about a month's time more, and she as yet has had no relapse.

By this method the physician can determine the secretions almost as he pleases ; for the forcing off purulent matter by these sores, is like running off a venereal infection by a gonorrhœa.

If

If any person will take the pains to consult what the most esteemed authors have written upon the subject of diseased glands, and compare it with this new method, he cannot fail of discovering at one view the great benefit unhappy sufferers will receive from it. For in the former practice the knife was the most gentle method of treating *strumæ*; nor could that indeed be always used; for in many cases it was found necessary to torment the patient, by applying either burning caustics, or the actual cautery itself; when they were afraid or despaired of extirpating by the knife, their spongy and luxuriant flesh. And altho' in many cases this might seem necessary, it was the only hope they had: whereas by the present method those luxuriances are suppressed without caustics, or the actual cautery; diseased glands are dissipated; ulcers are healed; and tumours are prevented from rising again, and the whole habit altered.

I hope you will think these little improvements not trifling; and I very much wish physicians would communicate more freely, even the least observations which they make in the MATERIA MEDICA; for these, how small

228 DOCTOR RUSSELL, &c.

soever they may appear to be, are yet so many gems placed in the diadem of medicine, that posterity will look upon with gratitude.

I am, SIR, &c.

R. RUSSELL.

INDEX.

I N D E X.

- A**BSORBENTS, useful in diseases of the glands, p. 179.
 Correct the acidities of the *primæ viæ*, p. 181.
 Therefore proper for infants, *ibid.*
 Sometimes constipate too much, p. 180.
 Sea-chalk in some cases the best absorbent, because least
 binding, p. 180, 181.
- ACIDS abound in the stomach of young animals, and
 their use, p. 57.
- ACRIMONY. *Acrimonies* in the stomach and bowels of
 children, how to be corrected, *ibid.*
- ALIMENTARY TUBE, supposed by some authors to do
 the office of a gland, p. 38.
 — The secretions from the glands of the *alimentary*
tube assist in bringing away the meconium, p. 39.
- ANIMAL fibres, their powers much lessened by castra-
 tion, p. 13.
 — When robbed of their elasticity, do not subject
 the fluids to a sufficient attrition, p. 88.
 Vid. ATTRITION.
 — The necessity of *animal fibres* being rendered
 stronger after the time of puberty, p. 86, 87.
- ANIMALCULA found in the *semem musculinum*, about
 the time of puberty, p. 8.
- ANGINA, or QUINSY. *Angina inflammatoria* of infants,
 p. 72, 73.
 — Of an epidemic *angina*, p. 108—112.
 — The symptoms that appear upon the inverting of
 eruptions from the skin in the epidemic *quinsy*,
 p. 109, 110.
Gangrenous sloughs fixed on the tonsils in the epide-
 mic *quinsy*, p. 109.

- Symptom attending them, 109.
- Event, *ibid.*
- Parotids* swelled externally, are sometimes critical in the epidemic *quinsy*, p. 110.
- Their tumours not to be repelled suddenly, p. 111.
- Eruptions on the skin in the epidemic *quinsy*, not much different from the scarlet fever, *ibid.*
- An history of an epidemic *quinsy*, with mortified sloughs, p. 114, 115.
- An history of an epidemic *quinsy*, where the tumours of the tonsils were too soon returned by purging, p. 116.
- *Mumps* a species of external *quinsy*, p. 117.
- Its description and progress, *ibid.*
- Method of cure, *ibid.*
- A translation of the matter from the glands of the throat to those of the testicles in the *mumps*, *ibid.*
- How to be treated, p. 118.
- This accident common, *ibid.*
- *Phrenitis* from recalling the matter too suddenly, which was thrown upon a testicle, in the *mumps*, p. 119, 120.
- Venæsection and purging with lenitives, &c. not to be abstained from in the *mumps*, p. 121.
- ANTIENETS. The writings of the antients, and their observations not to be neglected, p. 27.
- APHTHÆ, commonly afflict children and old people, p. 58.
- Commonly bring fluxions upon the tracheal glands, a cough, hoarseness, and sometimes death, *ibid.*
- Sometimes produce eschars in the intestines, and, when they fall off, dysenteric stools, *ibid.*
- Often affect the glands of the stomach, before they are perceived in the mouth, p. 59.
- Frequently creep through the alimentary tube like an herpes, *ibid.*
- Affect the glands of the areolæ, about the nipples of the nurse, when she gives suck to aphthous children, p. 60.

- Remedies used in *aphthæ*, and applied to the nipples of nurses, ibid.
- What children suffer most from them, p. 58. 80.
- ART of the physician is restrained within certain bounds, p. 26, 27, 28.
- Whatever speculations go beyond them, exist in opinion only, ibid.
- ATTRITION. Vid. ANIMAL, and FIBRES.
- Lessened by taking away the spermatic vessels of animals, p. 12.
- Animal warmth encreased by *attrition*, ibid.

B

- BATHING. *Tepid Bathing*, preferable to cold bathing in dry habits, p. 204.
 - Particularly useful in leprous, and severe scorbutic eruptions, ibid.
 - A remarkable case of the herpes kind, cured by *tepid bathing*, p. 206, 207.
 - The state of the disease, and proper season to be attended to in bathing, p. 205.
 - Different degrees of temperature may be ordered, as the disease requires, p. 207.
 - Bran and mallow leaves sometimes proper in *tepid bathing*, ibid.
 - A case of an humid lepra cured by *tepid bathing*, p. 208, 209.
 - The cold bath to be used in these cases at last to complete the cure, p. 209.
 - The Ægyptians used medicated broths, during a course of *tepid bathing*, p. 210.
 - Restoratives properly joined with it, ibid.
 - A very uncommon case of an owzing by the cutaneous glands cured by *tepid bathing*, p. 211.
 - Cold Bathing*, in the sea, known and used by the anti-ents, p. 212.
 - Bathing of all kinds in use amongst the Romans, p. 213.
- Nero,

- Nero, first introduced sea bathing amongst them, ibid.
- The division of sea bathing into general and topical, p. 214.
- The situation of the place proper for general sea bathing, p. 214, 215.
- *Cold bathing* dangerous, unless properly directed, ibid.
- The state of the disease must be particularly attended to, ibid.
- Different degrees of coldness may be directed, in proportion to the patient's strength and health, p. 215.
- The conveniencies arising from such discretionary use of the bath, p. 215, 216.
- *Cold bathing* never safe, if the viscera are much diseased, p. 216.
- In trifling or recent obstructions sometimes useful, ibid.
- Why bathing in sea water is preferable to fresh water in many cases, ibid.
- In *cold bathing*, the pressure of the fluid ought to be equal, p. 217.
- Ought to be used fasting, ibid.
- Bad to remain too long in the bath, because the muscles are thereby tired, ibid.
- *Cold bathing* of great use in weak nerves, p. 217, 218.
- Example in the *St. Vitus's dance*, ibid.
- Hysterical affections cured by cold sea bathing, 219, 220.
- Topical cold Bathing*, how much preferable to general bathing in some cases, p. 220.
- A case of the eyes cured by *topical bathing*, 221, 222.
- A remarkable case of strumous tumours and ulcers cured by *topical bathing*, p. 223.
- General bathing forces the humours off by the ulcers, p. 224.
- In

- In what general is better then *topical bathing*, ib.
- A strumous case cured by general bathing, 224,
225, 226.
- Great quantity forced off by the mouths of the
ulcers, p. 225.
- This cure finished by *topical bathing*, p. 226.
- BITUMEN, its various kinds, and uses amongst the an-
tients, p. 181—188.
- A sort of black *Bitumen* found on the sea-shore in
Suffex, p. 186.
- How levigated, and used in dissipating glandular
tumours, p. 186, 187.
- It ought to be applied till the gland is softened,
p. 187.
- Contains salt in it, p. 186.
- Strumous fingers may be properly fumigated with
this, after a tepid lotion of sea water, p. 188.
- BLOOD, its mass saturated by the *semen masculinum*,
p. 17. 96.
- The blood of infants is diluted and tender, the rea-
son why it should be so, and its uses, p. 41.
- Human blood heterogeneous, p. 44.
- Pale and watry, p. 82.
- In an advanced age is not thrown into the small
capillary vessels, p. 137.
- The changes in the habit upon it, ibid.
- Blood Vessels*, become firmer and more elastic from the
semen masculinum, p. 96.
- BONES. Incurvations of the bones from a wrong direction
of the muscles, p. 91.
- Heads of bones corroded by ichors, break out and
form incurable fistulæ, ibid.
- Enlarged from a sudden suppression of the *fluor*
albus, p. 141.
- How to be cured, p. 141, 142.
- BRAIN and TUMOURS. *Brain*, its glandular substance
sometimes apt to be affected on the sudden dis-
sipation of *critical tumours* of the glands, p. 120,
121.

- BUCKS. The growth of their horns considered, p. 14,
15, 16.
- Bucks horns*, the quickest of animal growths, p. 14.
- The effect the secretions of the *incentive glands*
have upon the habit of the *buck*, p. 17, 18, 19.
- The state of a *buck* after *castration*, p. 18.
- A *buck* castrated very young will have no horns,
p. 21.
- Experiments on the *castration* of *bucks*, p. 21,
22, 23, 24.
- A *buck* imperfectly cut had the left horn longer
than the right; probably because the spermatic ves-
sels of the left testicle were least injured; but this
not positively asserted, because it happened in one
instance only, p. 22.

C

CADMIA. See LAPIS CALAMINARIS.

CANCER. Cancerous ulcers of the mouth palliated by
the use of the *lapis calaminaris*, p. 197.

CASTRATION. Animal fibres, their powers much less-
ened by *castration*, p. 13.

— Torosity of the muscles taken away by *castration*,
p. 13.

— Native heat lessened by *castration*, p. 12, 13.

— Alters even the figure of the solids, p. 13.

— The marks of puberty prevented by *castration*,
p. 13, 14.

— The glands themselves destined to bring about
puberty, are rendered useless by *castration*, p. 13.

— Children made eunuchs have no marks of pu-
berty, p. 13, 14.

— The adipose glands less compressed after *castra-
tion*, p. 19, 20.

— Muscular flesh of castrated animals hath marble
like lines of fat, interspersed betwixt its fibres, p. 20.

— Muscles deprived of their gluten, which used to
connect their fibres strongly, after *castration*, p. 19.

CHALK

- CHALK. Sea chalk, a good absorbent, p. 180, 181.
 — abounds with sea salts, and therefore constipates less than other absorbents, p. 181.
 — Good against complaints of the heart-burn and worms, p. 181.
 — Lævigated with sea water, ibid.
 CHALYBEATES ought to be used with caution, p. 84, 85.
 COITION ampliates the vessels, p. 101.
 — Immoderately used, promotes frequent fits of the gout, p. 145.
 CONSUMPTION. Vid. HÆMOPTOE.
Glandular consumptions most frequent in males, before the 35th year of their age; in females, after the 46th year, p. 139, 140.
 CORNEA. Ulcers of the *cornea* cured by the use of lævigated pumex, p. 190.
 — An ulcer of the *cornea* cured by topical sea bathing, p. 221, 222.
 — Great use of a collyrium of burnt pumex in that case, ibid.
 — A remarkable case of the *cornea* and eyes, p. 221.

D

- DENTITION. Of the state of the glands at the time of *dentition*, p. 62.
 — Nature brings on *dentition* from the seventh to the tenth month, according to the encrease and strength of the infant, ibid.
 — Teeth not trusted to the injuries of the external air till they are polished, ibid.
 — The tonsils and glands of the throat and fauces are subject to fluxions during the time of *dentition*, p. 63.
 — A cough and hoarseness, with a great discharge of pituita, often attend *dentition*, ibid.
 — A diarrhœa often attends *dentition*, especially before the breaking forth of the dentes canini, ibid.
 The

- The belly to be kept soluble at the time of *dentition*, ibid.
- Fevers happen at the time of *dentition*, ibid.
- Of the state of the glands from *dentition* to puberty, p. 65.
- Adipose glands more compressed by the force of the muscles after *dentition*, ibid.
- External glands strengthened by the cold air, p. 66.
- Cutaneous glands less loaded with impurities after *dentition*, ibid.
- DIARRHOEA. *Diarrhœa* permitted to run into excess will create convulsive or epileptic disorders, from irritation, p. 46, 47.
- A spontaneous *diarrhœa* often relieves children labouring under plenitudes, p. 81.
- A *diarrhœa* often follows the striking in of the *red gum*, in children, p. 46.
- How far in that case it ought to be moderated, ibid.
- *Boyle's* prescription against a *diarrhœa*, p. 196.
- The use of the *lapis calaminaris* in a *diarrhœa*, ibid.
- DISEASES translated from one part of the glandular system to another, p. 19.
- The greatest part of *chronical diseases* arise from a translation of the morbid matter from one part of the glandular system to another, p. 26.
- Chronical diseases* will be best managed from a right knowledge how to govern glandular secretions, p. 3.
- Can be palliated rather than cured, p. 153.
- The power of a physician in their management, p. 153, 154.
- The improbability of curing many of them, if attempted at an improper time of life, and when nature doth not assist the physician, p. 20, 21.
- Accurate histories of them more useful than speculative enquiries, p. 26.
- Which fall upon the lungs between puberty and the

- the 35th year, are always to be diverted from thence if it be possible, p. 129.
- The frequent consequence of neglecting it, *ibid.*
- Of the *uterine glands* encrease upon the ceasing of menstruation, p. 139.
- From diminished perspiration. See PERSPIRATION.
- Glandular Diseases*, which are not cured before, have their greatest chance from an ampliation of the vessels between puberty and the 25th year, p. 97.
- Glandular Diseases*, which arise from congestion, especially if they fall on the cutaneous glands, are long in curing, p. 132.
- Many rise again, and are never cured, *ibid.*
- Glandular Diseases* encrease in males about the 60th year, p. 148.

E

- EPILEPSY, symptomatic, p. 47.
- A swarthiness is frequently perceived about the testicles, as well as about the mouth and eyes of male children, with an erection of the penis, before *epileptic fits* are formed, p. 46.
- Histories of *epileptic fits*, with a constipation of the belly, p. 48, 49, 50.
- With a diarrhœa, p. 51, 52, 53, 54.
- Epileptic fits* produced from pain at the time of dentition are often relieved by the surgeon upon releasing the tooth. p. 63.
- What children most subject to *epileptic fits*, p. 80.
- Of strumous epilepsies, p. 99, 100.
- Epileptic and paralytic affections from a strumous state of the brain, p. 91.
- Histories of epilepsies cured about puberty, p. 102, 103, 104, 105.
- ERUPTIONS. Vid. ANGINA EPIDEMICA.
- Variolous fevers not always productive of *eruptions*, p. 45.
- 3
- Scorbutic*

- Scorbutic and leprous eruptions* apt to shew themselves between dentition and puberty, p. 66.
- Cutaneous eruptions* difficult of cure, unless at the time of puberty, p. 67.
- EUNUCHS. Their habit soft, and lax, their voice feminine, and their whole appearance void of strength and manliness, p. 20. See CASTRATION.
- EXERCISE. Children strengthened by exercise, p. 68.
- Joined with the simple diet of the countryman best suited to produce an healthy and happy old age, p. 125, 126.
- Moderate exercise helps all the animal secretions; immoderate often invites a fit of the gout, by fatiguing the parts too much, p. 146, 147.

F

- FOETUS. The quickness of its growth, p. 35.
- Its quick growth observed by Dr. Harvey, p. 35.
- FEBRIS ALBA, or GREEN SICKNESS. 39.
- Febris alba*, accompanying girls from the 8th to the 14th year, the essay of nature to bring about menstruation, p. 82, 83.
- Febris alba*, cured by menstruation, p. 83.
- Animal fibres* being robbed of their elasticity, do not subject the fluids to a sufficient attrition; from whence obstructions are produced, p. 88. See ATTRITION.
- The *fibres* in an advanced age grow less elastic; sometimes bony, and in very old men quite petrified, p. 136.
- The consequence of their elasticity being lessened, p. 136, 137.
- Fluor Albus* exceedingly increased on the ceasing of menstruation, p. 140.
- Proper medicines, p. 140, 141.
- The danger of suppressing it too suddenly, p. 141.
- The

- The inconveniences sometimes attending, and their cure, p. 141, 142.
- FLUXIONS, brought upon the cutaneous glands about the navel, occasioned often by the negligence of nurses, p. 61.
- FUNGI are not produced till the plants are in a state of decay, p. 6.
- Examples given of the production of *fungi*, p. 5, 6.

G

- GARATILLO of the *Spaniards*, the epidemic or gangrenous quinsey, p. 116.
- GLANDS. Connections of some parts of the glandular system, with others, p. 18, 19.
- As the placenta relieved the mother from her plenitude in the first month of gestation, so the cutaneous and intestinal *glands* do the infant, p. 42.
- State of the *glands* at dentition, p. 62.
- From dentition to puberty, p. 65.
- The state of the *glands* about the time of puberty, p. 88.
- State of the *glands* from puberty to the 35th year in males; and to the 45 or 46th in females, p. 122.
- From those periods to the 63^d year, p. 135.
- From thence to the end of old age, p. 156.
- Under a state of laxity, most subject to be diseased, p. 88.
- Secretions set on foot by the *incentive glands*, about the time of puberty, p. 93.
- Secretions from the *incentive glands* rancid, p. 94.
- Most apt to receive the crisis's of fevers, p. 106, 107.
- Popular diseases of the *glands* of the throat and neck, p. 108—112.
- Affinity of the *glands* of the throat and neck, with those of the testes, p. 117.
- As *glandular secretions* ought to be encreased by little

- little and little, so they should be restrained by the same gradation, p. 125.
- In beginnings of *glandular obstructions*, the weakest part is most loaded and oppressed, p. 130.
- Most of the medicines used by the antients in diseases of the *glands*, were taken from the sea, p. 179.
- Useful in those diseases, because they correct acridities, p. 180.
- GOUT. Many disorders of sedentary people relieved, upon the *gout's* coming on, p. 127.
- It attacks people in the decline of life generally, p. 145.
- Seldom infants, children, women, or eunuchs, p. 125. 145.
- It causes obstructions in the glands and membranes of the joints, ibid.
- It attacks males, when their solids grow rigid, ibid.
- The life and diet to be observed, ibid.
- The antients thought, wine, venery, and idleness, the principal causes of it, ibid.
- First foundation of the *gout* often laid in youth, by various kinds of intemperance, p. 146.
- Immoderate exercise will bring on a fit of the *gout*, p. 147.
- Temperance in exercise and other things, will make it light, ibid.
- Nodes and chalky concretions in the joints, p. 151.
- Gouty cachexy and pruritus, p. 152.
- Gouty dropsies afflict old men, when they cannot procure regular fits, p. 152, 153.
- Draftic purges, and diuretics useful, ibid.
- The squill the best diuretic in these cases, p. 153.
- The cure to be finished by chalybeates, &c. ibid.
- In the last state of this disease, come on a gouty diarrhoea, tenesmus, dysenteric stools, and at last death, ibid.
- Opiates useful in such cases, ibid.
- GREEN

GREEN SICKNESS. See FEBRIS ALBA.

GROWTH. Too sudden *growth* apt to be attended with immoderate secretions, and too great a laxity of the vessels; stopt by the use of the cortex and sea bathing, p. 89.

Longitudinal growth. The antients thought it terminated at the end of twenty-one years, p. 94.

— Checked by the blood's being saturated with the *semen masculinum*, ibid.

— Bulk and thickness encreased by it, ibid.

H

HÆMOPTOES, and CONSUMPTIONS, which have had their foundations laid by diseases of the mesenteric and pulmonary glands, are apt to prove fatal by the 25th or 35th year in males, p. 130, 131.

HAIR; falling off of the *hair* a sign of the nurses constitution being brought too low by giving suck, p. 123, 124.

HARVEY, his experiments of the *punctum saliens*, p. 11, 35.

HELMONT's willow-tree, p. 11.

HEMICRANIA, from a petrified gland betwixt the dura and pia mater, p. 98, 99.

HIPPOCRATES. The two principles of *Hippocrates*, fire and water, considered, p. 11, 12.

HOOPING COUGH, *Tussis convulsiva*.

— What children suffer most by it, p. 80.

HYPPOCHONDRIAC diseases often arise from a sedentary life, p. 127, 128.

— Various *hypochondriac* complaints often caused by an intemperance during youth, p. 129, 146.

— Great skill necessary in the management of the secretions, to make the remainder of life easy to such persons, ibid.

I

INFANT. Of the state of an *infant* while it's life depends upon the mother, p. 25.

— Unhealthy, if it encrease in growth beyond a certain degree, unless the plenitude is relieved by some

Q

- some glandular secretion, or evacuation called in to it's aid, p. 40.
- Of gross habits, which abound with pituita, and have the bulk of the brain larger than other children, and the futures of whose skulls are not closed, to what complaints most subject, p. 76, 80.
- Their external glands not so subject to fluxions as their internal, p. 68.
- The stomach and intestines of *infants* abound with acidities, and viscid flimes, which afford proper nests for ascarides and round worms, p. 81.
- JOINTS lubricated by a liquor separated from the glands, p. 90.
- Nodes and chalky concretions in the *joints*, p. 151.
- See GOUT.

L

- LAPIS CALAMINARIS, called also *Cadmia*, and *Lapis ærarius*, p. 192.
- Its description, and where found, ibid.
- Contains a portion of copper in it, ibid.
- Used in making the orichalcum, p. 194.
- Prescribed by Mr. Boyle in fluxes of the belly and dysenteries, p. 195, 196.
- It was of great use in Ireland during an epidemic flux, p. 196.
- Useful to such as have weak bowels, p. 196, 197.
- Its qualities, 197.
- Proper to begin with a small dose, ibid.
- The inflammation ought first to be removed, ibid.
- It is styptic, ibid.
- Palliates in cancerous ulcers, ibid.
- The cerate of *lapis calaminaris*, and collyrium of *lap. cal.* and *pumex*, p. 198.
- LIFE, *sedentary*. Constipations of the belly, diseases of the rectum, piles, dysentery, and stranguary apt to accompany persons that lead sedentary lives, p. 126.
- Heart-burn, colics, diarrhœa, various diseases of

of the hypochondriac kind are apt to attend *sedentary persons*, unless *the gout* comes on to relieve them,
p. 126, 127.

— Rhubarb recommended by Lord Bacon, to help to protrude the *fæces* in *sedentary people*, p. 128.

— Sea water or gum pills proper to prevent a constipation of the belly in *sedentary persons*, ibid.

M

MALES not having the benefit of menstruation and giving suck, are rendered more robust, and fitter to undergo bodily labour, p. 125, 126.

— Not so subject to slow chronical congestions as females, p. 139.

— More subject to inflammations, ibid.

MAN. The knowledge of *man* a noble study, p. 1.

— A general idea of *man*, p. 3, 4.

— Endowed with an animated fluid, p. 3.

MATRIX. The state of the *matrix*, after the placenta is separated from it, p. 38.

MENSTRUATION not to be forced before its proper time, p. 83, 84.

— Seldom necessary while the glands of the breast are concerned in separating *milk*, p. 123.

— Nervous symptoms attend the defect of this evacuation, p. 29.

— From the 46th year less regular and periodical, p. 137.

— The inconveniences arising therefrom, ibid.

— Cure, p. 137, 138, 139.

— Foetid medicines now principally useful, p. 138, 139.

— When *menstruation* and parturition cease, the glands are again in danger, p. 139.

— Uterine diseases upon the ceasing of *menstruation*, and the cure, p. 140.

— Carries off other humours with the blood. Is necessary to preserve the delicacy of the female habit, p. 142.

— Women become masculine upon the total loss of it. Examples from *Hippocrates*, p. 142.

— The collateral vessels enlarged to receive the redundancies which follow the loss of it, about the 46th year of their age, p. 147, 148.

MILK. The saccharine part of the nurse's *milk* stimulates the bowels of the child, and prevents a constipation of the belly, p. 123.

MUSCLES. Torosity of the *muscles* necessary to undergo labour, p. 94.

— Torosity of the *muscles* accompanied with the elaboration of the *semen masculinum*, ibid.

— The powers of the *muscles* and heart in process of time weakened, p. 143.

— The destination of the fluids to the superficies at the same time lessened, ibid.

— An illustration from the examples of castrated deer, ibid.

— Hence perspiration becomes weaker, p. 144.

— Diseases consequent, and cure, p. 144, 145.

See PERSPIRATION.

N

NATURE. The method *nature* takes in relieving diseases should be carefully observed by the physician, p. 1.

— Is accustomed to change, and alter various glandular secretions at various times of our lives, ibid.

— The best interpreter of her own mysteries, p. 8.

— Puts no more difficulties upon the solids in bringing about changes in the animal œconomy, than their present state is able to encounter with, p. 10.

— Has all the constituent parts in her power before the birth, p. 7.

— Employed from the birth, in nourishing the infant, and ampliating its vessels, p. 40.

— restrained within certain bounds, p. 89, 167.

NERVOUS SYMPTOMS. See PLACENTA.

Nervous, or hysterical symptoms attend females who labour

bour under the defect of natural evacuation, the same in some degree as when they first become pregnant,

- p. 29.
 — Attend mothers who are too much weakened by giving suck, p. 123.
 — The marks of such debilitation, ibid.

O

- OLD AGE. Native heat, animal spirits, and muscular strength, lessened in old men, p. 148, 150.
 — Animal fibres are more rigid, but less elastic in them, ibid.
 — From thence sometimes no circulation can be kept up in the extreme parts. An incurable gangrene follows, p. 148, 149.
 — They are subject to frequent chronical congestions; because of diminished elasticity, p. 149, 150.
 — Diseases with which they are particularly afflicted, p. 151, 152.
 — How nature often attempts to relieve the habit at this time, p. 151.
 — Diseases are oftner transferred than cured in old men, ibid.
 — The 63^d year commonly called *the grand climacteric*: that notion derived from *Hippocrates*, p. 155.
 — Very old men relapse again into the diseases of childhood, p. 157.
 — Inspiration and expiration difficult to them, p. 158.
 — Expectoration troublesome to them, ibid.
 — Stranguries, dysuries, crepitations of the bones, &c. afflict very old men, ibid.
 — Marshmallow root, gum arabic, terebinth. Chio, &c. palliate in such cases, ibid.
 — The most elastic parts in very old men sometimes grow bony, p. 159.
 — Cachexy of old men, p. 160.
 Pruritus

- Pruritus of *old age*, from a retention of the perspirable matter, as troublesome as the gouty pruritus, ibid.
- The flesh brush and tepid bathing recommended in such cases, p. 161.
- Tepid sea water better than common water, because it deterges more, ibid.
- Sydenham's *eleſtuarium de ovo*, for the ferine pruritus, ibid.
- History of an old man afflicted with the pruritus of *old age*, p. 162, 163, 164.
- Wine the best opiate in this case, p. 163.
- Various diseases of the eyes attend very old men, p. 163.
- OPIATES not to be given to infants, unless there be great occasion from pain and irritation, p. 56.
- ORGANS of *generation* in both sexes, necessary to certain glandular secretions, p. 13.
- OVARIA. Diseases of them, p. 31, 32, 34, 34.
- OVARIES of the females of brutes susceptible of being impregnated earlier than those of the human kind, p. 8.

P

- PALSY. A *palsy* of the lower limbs from a relaxation of the vertebræ in a ricketty girl, p. 79.
- PAROTIDS. See ANGINA EPIDEMICA.
- PERSPIRATION is lessened, as the strength of the muscles and heart grows less, p. 144.
- The diseases which attend diminished *perspiration*, and cure, p. 145.
- PHRENITIS. See ANGINA.
- PLACENTA, its uses considered, p. 28, &c.
- Hysterical symptoms which afflict women on their first months of pregnancy, go off as the foetus and *placenta* encrease in growth, p. 29.
- Wharton's opinion of it, p. 35.
- PLANTS, a comparison betwixt animal and vegetable growths, p. 7.
- Old *plants* grow scabby, are covered with moss, perspire

- perspire weakly for that reason, and die, p. 160.
 — The manner of saving them, ibid.
- PLENITUDES. Salutary *plenitudes* brought on to amplify the vessels, and answer various purposes, p. 10.
 — Would be productive of diseases, unless nature had provided suitable discharges of redundancies at the various times of our lives, ibid.
 — Seldom arise in the habits of women while they give suck, p. 123.
- PREGNANCY. Symptoms which happen on the first months of pregnancy, p. 29, 30.
 — The method nature takes to relieve the symptoms which arise in the first months, p. 30.
 — The first example of nature's substituting one separation from the blood for another, ibid.
 — Venæsection, testaceous powders and rhubarb, convenient to correct acidities in the stomach of pregnant women, and guard against abortion, ibid.
- PUBERTY. Habit of body grows more firm, and the vessels more elastic, after *puberty*, p. 90.
 — Of the state of the *glands* from *puberty* to the 35th year in males, and to the 45th or 46th in females, p. 122.
 — One reason why so many die of consumptions, &c. between *puberty* and the 35th year of their age, is the neglect in managing the secretions, p. 129, 131.
 — The best precautions at this time are temperance, bleeding, and evacuations properly substituted, p. 131.
 — Nature points this out, ibid.
 More especially where the lungs are attacked, p. 132.
 — From *puberty* to the 46th year in females, the like inconveniences arise as in males to the 35th year, ibid.
 — Are not so subject to inflammatory disorders, p. 133.
 — The reason, ibid.
- PUMEX. Description of the *pumex*. Its different kinds. Q 4 Used

- Used by the antients in diseases of the glands, p. 189,
190.
 — Convenient to correct acidities, ibid.
 — How prepared, p. 191.
 — Finely powdered, is good in diseases of the eyes,
p. 190, 191, 192.
 — Heals ulcers in the cornea, ibid.
 — Taken internally deterges the viscidities, which
obstruct the mouths of the vessels, 191.
 — Taken in long fluxes of the belly, ibid.
 — Collyrium of the pumex, ibid.
 PURGING. See TUMOURS.
 — The danger of giving purging medicines too early
in *critical tumours* of the glands, p. 113.
 — The dissipation of such tumours best left to na-
ture's time, ibid.

Q

QUINSEY. See ANGINA.

R

REASONING on matters beyond our sight and microscopical observations difficult, p. 2.

REDUNDANCIES carried off by glandular secretions, p. 40.

— Signs of *redundancy* appear soon in an infant, on suppressing the discharges from behind the ears, and the sudden disappearing of the *red gum*, p. 44.

— Give less trouble in females than in males, and the reason, p. 125.

— Apt to be unloaded upon the glands of the joints, unless prevented by exercise, p. 128.

RHEUMS, young bodies most subject to *distillations*, p. 40.

RICKETS, a disease from laxity, p. 75.

— A description of it, p. 75, 76.

— Ens veneris and rhubarb proper in the *rickets*, p. 77.

Putrid

— Putrid gums and ulcers which foul the teeth, and affect the internal parts of the cheeks, often afflict *ricketty* children. These sometimes go into gangrenes, *ibid.*

— The use of the cortex Peruvianus, &c. in putrid ulcers of the gums, p. 78.

— Marks of scropula to be found in *ricketty* children, p. 79.

RUBELLA, or the RED-GUM, necessary in children, p. 42.

— the consequences of a sudden disappearance of the *red gum*, p. 43.

— Infants on the suppression of the *red gum* have almost the same symptoms, as their mothers have in the first month of pregnancy, p. 45.

— Infants afflicted with acid ructus upon the suppression of the *red gum*, p. 46.

— A diarrhoea often succeeds the inversion of the *red gum* in children, and, if it is restrained within due bounds, prevents symptomatic epilepsies, *ibid.*

S

SCROPHULA, what children most subject to it, p. 70.

SECRECTIONS. Glandular *secretions* are performed according to mechanical, hydrostatical, and hydraulic laws, p. 2.

— They are set on foot at different times of our lives, *ibid.*

— All attempts to alter the *secretions* against the laws of nature, and out of those proper times, are usually productive of diseases, p. 2.

— Knowledge of those seasons and periods will enable the physician to treat many diseases with more certainty than he could before, p. 2.

— The knowledge of the times when nature sets on foot different *secretions*, will point out to the physician the times he ought to administer help, p. 9.

The

- The changes which are made in glandular *secretions* are certain, and perpetually happen in every habit, under a healthy state, p. 10.
 - The doctrine of glandular *secretions* highly necessary to be known, by those to whose care the training up of youth is committed, p. 21.
 - Great variety of *secretions* are contrived to assist each other, if any difficulties arise, p. 26.
 - The direction of glandular *secretions* is often put into the hands of the physician, ibid.
 - Great care should be taken of glandular *secretions*, from the time of puberty to the 35th year in males, 129.
 - The power of a physician in directing the *secretions*, illustrated by the example of plants, p. 130, 131.
 - Neglect in this government of the *secretions* one reason why so many die of internal apostemations and consumptions between puberty and the 35th year of their age, p. 131.
 - The different temperaments, which the antients reckoned, arose from a paucity or redundancy of the several *secretions*, p. 156.
 - The government of the *secretions* greatly in the physician's power, p. 165.
 - Remarkable instance in the *lues venerea*, p. 165, 166.
- SEEDS primordial, and the probability of their undergoing the laws of circulation in plants, and in animals, till the *semen masculinum* is elaborated, p. 4.
- Examples given of the *seeds* of fungi circulating through plants, p. 4, 5.
 - Primordial *seeds*, whilst they undergo the common circulation of the fluids, are too small to be discovered by the microscope, p. 5.
 - Probability of the primordial *seeds* undergoing the common circulation of the fluids, till about the time of puberty, p. 6.
- SEMEN MASCULINUM earlier prepared in brutes, than in men;

- men; one probable reason for it, p. 8.
- Called by Zeno, *partis animæ spoliū*, p. 8, 9.
- Glands, conglomerate, their muscular tunics receive an additional strength from the *semen masculinū*, p. 9.
- Nature forms delays in elaborating the *semen masculinū*, as well as in the productions of fruit in plants, p. 6.
- Retarded in men, till about the time of puberty, p. 8.
- A comparison made of the effects the *semen masculinū* hath upon uncastrated and castrated animals, p. 13, 14.
- Probably puts a stop to longitudinal growth, and promotes lateral growth, or thickness, p. 23.
- SPINA VENTOSA, p. 91.
- SPODIUM partakes of the nature of Cadmia, p. 198.
- Called *tutia* by the Arabians, ibid.
- Two kinds of it, p. 199.
- The metalline *spodium*, ibid.
- Used by the antients in diseases of the eyes, ibid.
- The *aqua sapphirina* of Bates somewhat of the nature of the *spodium*, ibid.
- Ought to begin with small quantities, lest it should vomit, p. 200.
- *Spiritus veneris antiepilepticus Helvetii*, a medicine of the same nature, p. 201.
- The *spodium* good in gleets and in the *fluor albus*, ibid.
- *Spodium* of the same nature with the *lapis calaminaris*, ibid.
- How prepared for use, ibid.
- STEEL. Caution against the imprudent use of *steel*, p. 85.
- STRUMA. *Strumous* tumours shew themselves betwixt dentition and puberty, p. 81, 82.
- Epileptic and paralytic affections from a *strumous* state of the brain, p. 91.

TESTICLES

T

TESTICLES matured in the mumps for want of evacuations, p. 120, 121.

— A horizontal posture necessary in tumified *testicles*, p. 121.

TONSILS. Large *tonsils* a sign of a weak system of the glands, and portend the danger of a future schrophula, p. 68.

— Once matured are apt to go into suppurations afterwards on slight occasions, *ibid.*

— The chirurgical operation on the *tonsil* proposed, p. 69.

— History of a matured *tonsil* cured by the operation, *ibid.*

TUMOURS. Scirrhus *tumours* in the brain, p. 99.

— upon the knees from a sudden suppression of the *fluor albus*, how to be treated, p. 141.

— Emphysematous *tumours*, *ibid.*

— Topical bathing, &c. recommended in those cases, p. 142.

— Of the glands dissipated by the warm steam of the bitumen, p. 187.

— The cure to be finished by cold sea-bathing, *ibid.*

— Strumous *tumours* attended with ulcers cured by topical cold bathing, p. 223, 224.

U

VENÆSECTION, when necessary in eruptive fevers, at the beginning, p. 112.

UNGUENTUM *de pice liquidâ*, p. 208.

UVULA. Diseases of the *uvula*, p. 70.

— History of a *pendulous uvula* cured by the operation, p. 71.

W

WOMEN enjoy a good state of health when they become mothers,

- mothers, and give suck to their own children, p. 123.
- Are subject from puberty to the 46th year to such complaints as arise in males to the 35th year, p. 132, 133.
- They are not so subject to inflammatory disorders, and why, p. 133.
- More subject to chronical congestions, p. 139.
- What diseases *women* are most liable to after the 46th year, ibid.
- Great alterations made in their habit at this period, p. 147.
- The collateral vessels enlarged at this time by degrees, to take off the redundancies arising upon the loss of menstruation, ibid.
- Apoplexions in obstructed glands not so frequent after this period, as before, p. 148.
- WORMS afflict children; their cure, p. 81.
- Sea chalk sometimes good in these cases, p. 181.

Y

- YOUTH. The impatience and intemperance of *youth* in pursuit of pleasures, the cause of many diseases, p. 129.
- The animal functions weakened thereby, p. 146, 147.
- Various disorders arising from thence, p. 147.

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